# Indian Archaeology

2000 - 01 A Review

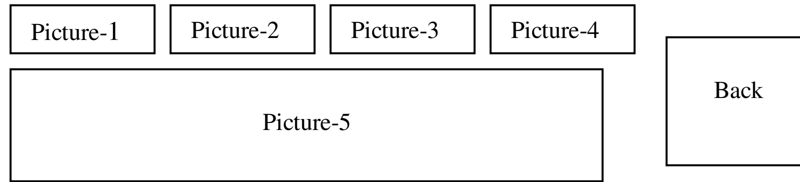





# INDIAN ARCHAEOLOGY 2000-2001
# -A REVIEW




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**Front Cover:** *1 and 2, Sravasti: plaque showing bust of a lady and lady with conches; 3, Ajanta: plaque depicting Mahishasuramarddini ; 4, Nyarma (Leh): inscribed tablet; 5, Munikallu: topikal*

**Back Cover:** *Datia: mural painting. Raja Bir Singh Deo Palace*



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# PREFACE

It gives me great pleasure in presenting this issue of ***Indian Archaeology 2000-01 — A Review.*** This annual publication reviews the activities conducted in various fields of the archaeology in the country every year. But this first issue of the 21st century is also an occasion to review the Indian Archaeology in the last century and to plan for the first century.

When I look back, I can see some of the events that shaped Indian Archaeology in the last century.

The first half of the century is rightly termed as the era of Marshall and Wheeler. Joining of Sir John Marshall as the Director General in the Survey, in 1902, was the beginning of a new era in the Indian Archaeology. His principles on archaeological conservation guided all of us in the Survey throughout the century, and are still relevant.

The first decade also witnessed many other important events like publication of Annual Reports of the Director General, which presented the works and research activities carried out by the Survey, creation of a separate branch for epigraphical research and enactment of Ancient Monuments Preservation Act in 1904 which provided legislative powers for the protection of monuments and archaeological sites and remains. In 1906, the Survey was placed on a permanent and improved footing.

Discovery of Harappa and Mohenjo-daro in 1921-22 and subsequent excavations pushed the Indian History two thousand years back. With the establishment of Exploration Branch, explorations and excavations were given due attention.

R.E.M. Wheeler, who became Director General in 1944, laid special emphasis on exploration, excavation techniques and the problem related to chronology. He introduced the system of periodization by stratification technique of excavation and improved the system of reporting and publishing. It had a great impact on Indian Archaeology, which can be felt till date.

After independence in 1947, we lost both the most famous sites in Indus Civilization. Archaeological explorations by the Indian Archaeologists resulted in the discovery of a large number of Harappan sites in the country. Loosing Mohenjo-daro and Harappa created such an intense emphasis on Harappan Archaeology that the study of archaeological remains of other periods was not given much attention.

India has vast treasures of epigraphic records in the form of inscriptions, copper plates and numerous ancient manuscripts. Our epigraphists have collected thousands of inscriptions and deciphered them, which helped in rewriting the history. I am deeply concerned about the subject and appreciate the work being done by the dedicated teams.

In 1945 conservation was also brought under the purview of Survey. Enactment of the Ancient and Historical Monuments and Archaeological Sites and Remains (Declaration of National Importance) Act in 1951 added a large number of monuments under central protection. It increased Survey's activities

many fold. According to the need of the hour the Ancient Monuments and Archaeological Sites and Remains Act was enacted in 1958, which as on date, is the main Act for the preservation of ancient monument and archaeological sites and remains of national importance. Other legislative actions in the form of Acts and amendments to them provided necessary powers to protect our cultural heritage.

Coming back to the publication of *IAR,* the first issue was published as "Report of the Director General of Archaeology in India on the occasion of the tenth meeting of Central Advisory Board of Archaeology, 1954". It was a good beginning and till 1960-61 it published regularly. From the 1961 -62 issue, it started getting delayed, which unfortunately, could not be covered up despite the best efforts by successive Directors General, in the last quarter of the century.

Though I am happy to present the first issue of this century but I am also aware of the long delay of five years. This delay occurring for last 45 years in publication of this Annual speaks for itself.

Excavation is the prime activity in archaeology. A glance on any *Review* makes it clear as it covers the most part of the publication. But I feel sorry to note about delay in writing and printing of excavation reports. A number of archaeological sites are excavated every year but their report, which are an integral part of the excavation, are not written. I feel that any excavation remains incomplete unless its results are published and made available to the scholars and to the public in the form of a detailed report. It was Wheeler who pointed out that excavation without a report is destruction.

During my interaction with scholars, some scholars shared my view that the reports published in the *Review* may be taken as reports published. We have discussed the issue time and again and have made it adequately clear to all those who have such erroneous view that the brief information included in the *IAR* is only the review of various activities and not the report. I am of the view that every work in the field of archaeology, either exploration, excavation or conservation needs to have a report.

I remember the first Director General of the Survey, A. Cunningham, whose monumental work in 24 volumes was reports on explorations carried out by him in different parts of the country. In this century, if we review that tradition, it would be a great service to the subject.

With the development of the scientific studies, there is need to change our views about large excavations where hundreds of people are engaged and a large number of trenches are dug in a relatively short period. Huge data recovered in such diggings generally becomes unmanageable for limited number of qualified staff and in the process invaluable evidences are lost. Therefore, our approach should be more scientific in order to utilize various scientific and remote sensing methods for nondestructive reconnaissance.

Another thing that we need to pay proper attention is the scientific dating. In the first half of the last century chronology of the cultures was based primarily on comparative archaeology. In the second half absolute dating methods were utilized but the dates obtained were limited in number and still many gaps exist in the chronology. We need to address this aspect and firmly date all the periods with a number of

absolute dates to build up a firm chronology leaving no room for speculations. It is unfortunate that this issue has no information for the chapter Radiocarbon dating.

The present review is divided into eleven chapters following the traditional system. Excavation, as usual, forms the major part of the activities reviewed. Among these, excavations carried out in the Northeastern States - Arunachal Pradesh, Assam, Manipur, Meghalaya and Tripura, need to be mentioned. Excavations carried out by the Guwahati Circle are noteworthy. Discovery of reliquary with silver and gold casket and charred bones in the stupa at Ambaran (J & K) is also a significant find. Excavations at Kanaganahalli (Karnataka) have further exposed remains of Buddhist stupa and *vihara.* Excavation at Sravasti (U.P.) is another major excavation taken up during the period under review.

I am deeply concerned with the minimal entries in the chapter entitled treasure trove. We often hear about the discovery of treasures but due to ignorance much of the valuable evidence still get lost, destroyed or melted. Awareness about the provisions of the Treasure Trove Act, 1878 may encourage to declare such finds which in turn will enrich our collections in various museums.

I appreciate the studies carried out by B SIP, Lucknow but at the same time it worries me that why despite so much archaeological researches carried out in the country, we have very few trained palaeo-botanists to carry forward further research on the field of Archaeobotany.

I also feel that the archaeological site museums need to modify their display and activities as per the changing scenario. They need to be more educative and interactive than mere displaying the objects. New museums are set up at Nizamabad by the Government of Andhara Pradesh and Mirza Ghalib Memorial Museum, Government of Delhi. Setting up of new museums at Thanesar in Haryana and Kangra in Himachal Pradesh, by the ASI, are in progress.

I am thankful to all the field archaeologists who have sent us information about the works carried out by them during the year under review. While presenting this review to the scholars I trust in this century we would work in more systematic manner to search, study and preserve the cultural heritage of the nation.

Lastly, I express my thanks to Dr. B.R. Mani, Director (Publication); Dr. Arundhati Banerji, Superintending Archaeologist (Publication); Shri Hoshiar Singh, Production Officer (Publication); Dr. Piyush Bhatt and Shri Gunjan Kr. Srivastava, Assistant Archaeologists (Publication) besides all the other members of the Publication and Drawing Sections for their cooperation at every stage in the preparation and publication of this issue.

New Delhi
01-09-2006

**C. Babu Rajeev**
**Director General**

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# INDIAN ARCHAEOLOGY 2000-01—A REVIEW

# I. EXPLORATIONS AND EXCAVATIONS

## ANDHRA PRADESH

I. EXCAVATION AT SASANIKOTA, DISTRICT ANANTAPUR

Excavation at Village Sasanikota in Pargi Mandal of Anantapur district, conducted by the Department of Archaeology and Museums, Government of Andhra Pradesh, Hyderabad, is located at a distance of 120 km from the District headquarters and 10 km from Hindupur town.

It yielded brick structures associated with early historical cultural material such as pottery, beads, bangles, iron objects, terracottas, Satavahana coins etc. The pottery include dull red ware, chocolate ware, red ware, glazed red ware and russet coated painted ware. The shapes include pots, bowls, deep bowls, *kujas,* storage-jars etc. Based on these finds the site may be datable to the post-Satavahana period.

2. EXCAVATION AT PHANIGIRI, TIRUMALAGIRI (M), DISTRICT NALGONDA

The site Phanigiri, a Buddhist settlement, 35 km from Suryapet on Hyderabad-Vijayawada National Highway was taken up for excavation by the Department of Archaeology and Museums, Government of Andhra Pradesh, Hyderabad. It is 45 km from Jangoan, the nearest Railway Station. The monastic-complex is located on hill-top towards north-east of the village. As the southern portion of the hillock resembles the hood of a snake, the site is locally known as Phanigiri.

At the foot of the hillock on the northeastern side, overlooking a tank locally known as 'Nadimi cheruvu' a cluster of megalithic burials of cairn circle variety were noticed.

Excavation brought to light a Mahastupa, stone-pillared congregation hall, viharas and other brick structures besides a good number of antiquities datable between the first century and the third century AD.

The partially exposed stupa (dia 18 m) shows the plan of a wheel with spokes. It has four *ayaka* platforms on four cardinal directions. Each *ayaka* platform measures 4 m x 1.25 m. The western *ayaka* platform retained five limestone *ayaka* pillars. The drum and *ayaka* platforms were

plastered with lime and luted with sculptured limestone panels. Presently, only the lower portions of the panels could be visible at the site. Further excavation in front of the *ayaka* platforms brought to light a portion of brick structure running parallel to the *ayaka* platform. It appears that the stupa might have been built over a brick platform. On the southwestern corner of the platform were found forty-two lead coins of Mahatalavarasa. The bricks used in constructions measure 50 x 25 x 7 cm. Further south of the Mahastupa was exposed a stone-pillared congregation hall with an entrance on the northern side. From this hall several broken sculptural panels were recovered, some of these bear inscriptions in Brahmi characters of the first - third century.

Altogether three viharas were exposed in three localities. Each vihara consists of nine cells. In third locality partial excavation brought to light five cells, each measuring 2.70 m. x 2.70 m. While exposing these cells, a good number of Satavahana and Ikshavaku coins were found. The fragmentary label inscriptions on limestone panel read as *'Jambudvipa mile vagu'* (first century AD) and *'Siri Chantamula'* - the founder of the Ikshavaku dynasty (third century AD) etc. Based on the above cultural material, the site is datable to the first-third century AD.

### 3. Excavation at Dantapuram, Sarabhujali (M) District Srikakulam

The Department of Archaeology and Museums, Government of Andhra Pradesh, Hyderabad, carried out excavation at Dantapuram - the ancient capital city of Kalinga which lies on the left bank of the River Vamsadhara, 6 km away from Amudalavalasa in Srikakulam district. The mud fort covers an area of 500 acres of land.

Excavation at Mound 1, on the northeastern border brought to light foundation of a brick structure over dressed-stone foundation. The wall plastered with lime bears stucco decorations as attested to by the occurrence of fragments of floral designs executed in lime. The width of the wall measures 75 cm. Fine mud was used as mortar.

Excavation at Mound II revealed two phases of cultural activity, i.e., phase-I and phase-II. Excavation at a depth of 0.50 m exposed the foundation of a medieval stone temple. Associated with this structure, remnants of broken *amalaka,* icon of Ganesa and a number of architectural pieces of the temple were recovered. On the northern side was exposed a disturbed brick structure at a depth of 1.50 m along with early historic cultural material such as beads, terracotta objects, pottery such as red ware, dull red ware, black-and-red ware and tan ware. Based on these finds the site could be dated from the second century BC to the fourth century AD.

### 4. Excavation at Pavuralakonda, District **VISAKHAPATNAM**

The Department of Archaeology and Museums, Government of Andhra Pradesh, Hyderabad, conducted excavation at the Buddhist site on the hill top of Narasimhasvamy konda in Bheemli, familiarly known as Pavuralakonda, located 30 km north of Visakhapatnam. The river Gosthani, the main water source for the inhabitants, on the northern periphery, merges with the sea and forms a vast lagoon / confluence which in turn forms an

estuary point for inter and intra-trade activity in the early centuries of the Christian era.

Excavations brought to light an apsidal *chaitya-griha,* a square cell, four viharas, votive stupas, a stone pillared-congregation hall, early historic pottery and Satavahana coins.

The viharas are raised on peripheral area of the summit running from north-to-south. There is a stone staircase on the western side of the stone barricade wall for entering into the monastic-complex. The number of cells in viharas vary. The first vihara contains two cells, the second one, four, and the third and the fourth ones have two big cells and six cells with a common verandah respectively. Each cell measures 2.45 m x 2.50 m. The floor of the verandah and the cells of the viharas are treated with lime-concrete and smoothened with fine lime-paste.

An apsidal *chaitya* (10.50 m x 5.90 m) was unearthed with stone stupa near the apse opposite to the first vihara. At the entrance there are two balustrades depicted with the figures of Muchilinda Naga and lotus medallion.

## ARUNACHAL PRADESH

### 5. Exploration in District Lower Subansiri

The Prehistory Branch, of the Archaeological Survey of India[1], along with the Excavation Branch-I, Nagpur, under the direction of S.K. Mittra, carried out explorations in the lower Subansiri district of the State and collected stray neolithic tools from places like Miyan, Toon and Tona.

## ASSAM

### 6. Excavation at Suryapahar, District Goalpara

Syed Jamal Hasan, assisted by K. Lourdusamy, B. Sinha, T.K. Srivastava, P.K. Majumdar of the Guwahati Circle, of the Survey, resumed *(Indian Archaeology 1999-2000,* pp. 1-9), excavation at Suryapahar near the ancient tank and yielded remains of an ancient *panchayatana* stone temple-complex with three phases (pl. 1).

Phase 1 : As reported earlier, most part of the basement was exposed earlier. The *garbha-griha* (7.10 m x 6.75 m) of the main sanctum was a chance discovery by local people while digging a trench for construction of a new temple. The entire basement of the ancient temple is now completely exposed including its stone pavements on both sides of'the *garbha-griha.* The temple-complex is comprised of main temple and four subsidiary shrines. On axial plan, it consist of *garbha-griha* followed by *antarala, mukha-mandapa* and *mandapa.* The *sikhara* of the man temple appears to be that of north Indian style as evidenced from the art motifs of a small decorative piece of *amalaka* (pl. 2) on top. The main shrine opens towards west. It possesses two wide stone pavements, 40m wide on each side. The pavements comprised chiselled masonry blocks of various dimensions. The *garbha-griha* is followed by an *antarala* (2 m x 1.25m), connected with a rectangular *mukha-mandapa* (5 m x 6 m) on the western side of the central sanctum. There are two passages for entrance into the *mukha-mandapa,* each of them is 1.25 m wide. There are provisions for two transepts (7.70 m x 2.05 m) found on

[1]Referred to as the Survey in the following pages.
[2]- This publication is referred to in the following pages by the year only.

Plates 1-2



1



2

*Suryapahar:* 1, *excavated remains of panchayatana temple-complex* and 2, *stone amalaka*

either side of the *mukha-mandapa.* In front of the *mukha-mandapa,* there lies remains of a large *maha-mandapa* (10.20 in x 8.25 m), all made of chiselled stone blocks of various dimensions. It appears that a small porch in front of the *maha-mandapa* is attached to the western side, also connected with a brick paved pathway on the western side of the complex. The deity of the main shrine was not found during the course of excavation but an image of Vishnu, discovered from the bed of the adjacent ancient tank is now preserved in the Assam State Museum, Guwahati. The four subsidiary shrines lie at four corners of the complex which are connected with the brick-paved pathways. The subsidiary temple (2.05 m x 2.35 m) in the north-west corner of the temple-complex was perhaps dedicated to Lord Ganesa as a small broken sculpture of the deity (pl.3) was found near this subsidiary shrine. Another subsidiary shrine on the northeastern side of the complex near the basement of the sanctum proper could be associated with the temple of Mahishasuramarddini as evidenced from a beautiful sculpture of the deity in black basalt (pl. 4). The basement of this subsidiary shrine is rectangular (4.35 m x 2.35 m). All the masonry stone blocks were joined with the help of iron clips and pins as noticed from the remains. This subsidiary temple is connected with a brick-paved pathway and simultaneously joined with the temple of Ganesa and the *maha-mandapa.* Another completely exposed small shrine of rectangular plan (4.35 m x 2.35 m) lies on the southwestern .side of the complex, partly excavated earlier. There appears to be an inscription in stone. A brick structure of rectangular plan (5.85m x 4.70m) perhaps served as *mukha-mandapa* to this shrine which exists on the western side of the subsidiary shrine. The brick sizes are 21 x 13x5 cm, 19 x 13 x 5 cm and 23 x 13x5 cm. The fourth subsidiary shrine, lying at the south-east corner of the complex yielded a stela portion depicting *Kirttimukha* surrounded by two (lying figures of *Vidyadharas* (pl. 5). Only the plan of this subsidiary temple is now survived (2.60 m x 2.50m), comprising chiselled blocks of stones. A wide brick-paved pathway, 31 m long, aligned in east-west direction, is found by the side of these two subsidiary temples located on southern sides. However, bricks of the pathway were robbed on the eastern and western sides.

In phase II, a brick temple of (5.40 m x 5m), just behind the main sanctum, noticed on the eastern side of the complex with sizes of burnt bricks range from (20 x 18 x 6cm), (22 x 18 x 6cm), (22 x 2 1 x 7cm) etc. A long pathway cordoned by stone members of 3.15 m wide laid in front of this brick temple was exposed in last season.

It appears that a quadrangular brick enclosure wall (23.45 m x 41.80 m x 30.90 m x 49.20 m) on east, south, west and north respectively were provided in the last structural phase, i.e., phase HI. The brick temple of phase II ceased to exist in this phase as the bricks of eastern compound wall were found superimposed over the structure of this temple. The arms of the compound walls mostly exposed in the earlier season except eastern compound wall and eastern part of the northern compound wall which were exposed completely during this season. A brick paved pathway (15 m x 3.20 m) with cordoned stone members also provided in the western side of the complex. The pathway contains a small *nala* across its width for discharging the collected water on either side of the complex. Another noteworthy discovery is the plan of rectangular brick-built structure (8.50 m x 6.55 m), found on

Plates 3-5




3



4



5

*Suryapahar:* 3, *miniature sculpture of Ganesa (broken),* 4, *Mahishasuramarddini* and 5,*upper portion of stella showing kirttimukha and vidyadharas*

the southwestern corner of the complex. The superstructure of this cell might have been built with terracotta tiles as the large number of finds would indicate. The size of the bricks used in this structure measures 19x12x7 cm, 16x13x5 cm, 22 x 13 x 3.5 cm and 18 x 12 x 7 cm etc.

The most dominantly represented ceramic assemblage is the red ware although some quantity of grey ware and micaceous ware of coarse to medium fabric were also reported. The grey ware shows thin section of fine fabric, well-sorted and well-burnt. Some of the red ware sherds are decorated with wavy designs while a few are grooved. Almost all the ceramic assemblages found are wheel-turned but for the big storage-jars.

Among the notable antiquities mention may be made of the image of Mahishasurmardini in black basalt (47 x 24 x 8 cm) beautifully depicted with wavy drapery, ornamental necklace around her neck and two earrings. The deity bedecked with *kiritamukuta,* holds her usual weapons and stands on the lion. Another stela portion showing *kirttimukha* and two flying *vidhyadharas* are depicted on the top. Besides, a few architectural members like *amalakas,* pillar bases, *gajasimha* and terracotta plaques of floral motifs were recovered. Two copper coins of Emperor George Vth were found from layer (2). On the basis of stylistic features of the antiquities and ceramic assemblage, this *panchayatana* temple-complex could be dated between *circa* ninth and twelfth centuries AD, while the cultural deposit of layer (2) to the British period on the evidence of coins.

Excavation near Ganesh *kund,* about hundred meter south of *panchayatana* temple-complex yielded an ancient water channel of approximately 60 m long, which appears to be of same period. The channel originating from a water *kund,* and drains out through a channel of approximately 1.25 m wide. Although the existence of it can be traced at several places where the stone members along both sides of the water channel were kept. In a few places repairing of the channel was done with the help of burnt-bricks.

### 7. EXCAVATION AT KARENG GHAR (TALATAL GHAR) COMPLEX, DISTRICT SIVASAGAR

Syed Jamal Hasan, assisted by A. Gupta, of the Guwahati Circle and Debendra Kasbi of Excavation Branch — I, Nagpur, of the Survey, carried out excavation at Kareng Ghar complex to expose the buried structures on the northeastern and southeastern sides of the north-south aligned Kareng Ghar. Small-scale excavation in twelve quadrants (5 m x 5 m) of eight trenches, revealed burnt-brick structures like walls, rectangular structure, brick pavements, etc. The structures appeared to be the part of Kareng Ghar which were probably built by Ahom king Rajeshwar Singha (AD 1751-69).

### 8. EXCAVATION AT MAIDAM NO. 2, CHARAIDEO, DISTRICT SIVASAGAR

Syed Jamal Hasan, of the Guwahati Circle, assisted by D.K. Singh and N.K. Sinha of Excavation Branch III, Patna, of the Survey , resumed excavation at Maidam No. 2 at Charaideo.

A trench measuring 6 m (width) and 6.2 m (long) across the mound from the top to the ground level was laid to cover the entrance and centre of the Maidam. Excavation yielded an octagonal enclosure wall of burnt-bricks along the bottom of the Maidam. The wall is survived by extant remains of nineteen courses of brick of 1 m height

mixed with lime and *surkhi* mortar. The octagonal enclosure wall, measures 360 m long in circumference and a width of 1.10 m. There are eight bastion like structures in eight corners of the wall. An entrance gate along the octagonal enclosure wall was also exposed along the western side.

The construction point of the Maidam, i.e., burial mound was struck about 6 m from the entrance gate. Accumulation of large quantity of stone pebbles were noticed at this particular point. Three courses of bricks laid over these pebbles. The superstructure of the vault of the Maidam is yet to be excavated. However, the exterior plan of the frontal projection of the Maidam measures (1 m x 1 m x 0.90 m) with nineteen courses of bricks.

At the top of the mound, a circular brick-paved platform of 3.60 m across was exposed containing four courses of brick. Different sizes of brick were used for construction of the structure such as (25 x 1 9 x 4 cm), (24 x 20 x 4 cm), (22 x 15 x 3.5 cm), (24 x 13 x 3.5 cm), (24 x 17 x 3.5 cm) and (25 x 1 9 x 4 cm). Among the antiquities, a mythical animal with dragon like features in terracotta is noteworthy. No datable object was found, although the literary references from Ahom Chronicles assigned a late medieval period for the site.

**BIHAR**

9. EXCAVATION AT STUPA MOUND, KESARIYA, DISTRICT EAST CHAMPARAN

In continuation of the last season's work (*l 999-2000,* pp.9-11), Patna Circle, of the Survey, resumed excavation at Kesariya, under the guidance of Muhammed K.K., assisted by T.J. Alone, D.P. Sinha, K.C. Srivastava, D.N. Sinha, M.K. Dwivedi, B. Gartia, M.P. Singh, Avinash Kumar and Rajnish Raj, to further expose the stupa structure (pl.6).

The cylindrical drum of the stupa on top and the upper two terraces were cleared of the debris all around (pl. 7). This has exposed a 80 cm wide staircase on the south-west corner connecting the upper two terraces. The staircase is concealed within the polygonal designs between the cells and is not prominently visible in the general view of the stupa (pl. 8).

Exposing the stupa further west on the lower three terraces, group of three cells separated by polygonal design were found on the same pattern as in previous excavation (pl. 9). Pedestal along the back wall for placing stucco image of Buddha (pl. 10) was also exposed. Traces of stucco images, almost fragile, was found. Noticeable is the head of a stucco image which throws light, for the first time, on the facial features of the image confirming it to be of Gupta period. So far only the lower part of the image was found in previous excavation.

Many beautifully carved designs on bricks were found apart from moulded bricks. Pottery finds are scanty. Red ware and black ware potsherds of vases and bowls, spouts, brick tiles, hopscotch and beads form other scanty finds.

10. EXCAVATION AT CHANDIMAO, DISTRICT NALANDA

The Excavation Branch-Ill, Patna, of the Survey, under the direction of G.C. Chauley, assisted by B. Nath, D.K. Ambastha, D.K. Singh, N.K. Sinha, S. Nayan, J.K. Tiwari, S.P. Gupta and O.P. Pandey conducted excavation at Chandimao (25°3'N, 85°30'E).

Plates 6-7



6



7

*Kesariya: 6, mound before excavation* and 7,*excavated remains*

Plates 8-9



8



9

*Kesariya: 8, polygonal pattern between two series of cells* and 9, *group of three cells (north view)*

**Plates 10-11**



10



11

*Kesariya: 10, stucco image of Buddha inside the cells* and 11, *Chandimao: votive stupa on brick paved floor with mud-plaster*

**Plates 12-13**



12



13

*Chandimao:* 12, *brick paved floor with lime-plaster* and 13, *votive stupa on brick paved floor*

Plates 14-15



14



15

*Chandimao:* 14, *votive stupa on square base* and 15, *front portion of apsidal chaitya*

**Plates 16-17**




16



17

*Chandimao:* 16, *inscribed sealing* and 17, *fragmentary sealings*

Plates 18-19




18



19

*Chandimao:* 18, *inscribed sealing with bhumisparsa Buddha* and 19, *representation of Vishnu in a row*

Plate 20

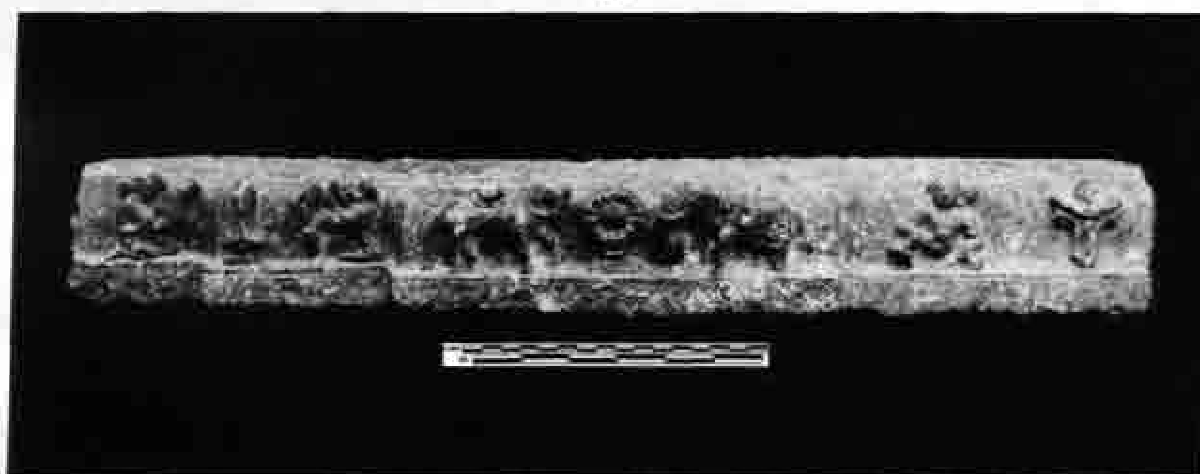



*Chandimao: headless seated Buddha*

Plates 21-22




21



22

*Chandimao:* 21, *Buddha heads* and 22, *pedestal depicting ashtaratnas*

The mound locally known as Tilhapar, roughly measured 70 x 60 sq m, situated in the southwestern corner of the' village, was divided into grid pattern and altogether fifteen trenches were taken up for digging which revealed a single culture deposit of Pala period.

The excavation revealed the remains of a brick-built Buddhist temple and votive stupas on a brick-paved floor (pls. 11-13) which seems to be the courtyard of the temple. Entrance to the temple is exposed only in the southeastern portion of the complex. The votive stupas are of various shapes and dimension. Twelve votive stupas were exposed in the northern and the southern side of the temple. Most of the votive stupas are circular in shape from base to the hemispherical top. But four of them are raised on a square brick platform (pl. 14). A good number of fragments of circular bricks with a central hole, collected from nearby votive stupas, suggests that their use as *chhatravali* for these votive stupas.

Another brick structure noticed in the form of an apsidal temple *(chaitya)* towards the western part of the mound (pl. 15), has its northern end semicircular with a radius of 1.40 m. The brick sizes at Chandimao structure are 35cm x 26cm, 34cm x 25cm with a thin layer of lime-plaster is also observed on the brick floor. Besides, some flimsy brick structures were also noticed, although exact shape and purpose could not be ascertained.

Excavation yielded sherds of red ware only. Most of the sherds are well-fired, devoid of surface treatment. But a few of them are found treated with pale red slip, over which is applied river bank dust for shine before the use of slip. The fabric ranges from coarse-to-medium. The types include vases with narrow mouth, vases with wide mouth, carinated *handi,* bowls, lamps, lid and basins and basin-type ritualistic pot bearing *naga* figures on the body.

Among the terracotta finds a solitary example of bead, sealing (pls. 16-18) and plaques; besides stone sculptures of Hindu (pl. 19) and Buddhist deities (pls. 20-21), assignable from eighth to tenth century AD and a fragment of a pedestal depicting Ashtaratnas (pl. 22) are noteworthy.

11. EXCAVATION AT RAJGIR, DISTRICT NALANDA

In continuation of the previous year's *(1999-2000,* pp.11-15) work, conducted by the Excavation Branch III, Patna, of the Survey, the mound near Banganga at the southern tip of Rajgir was taken up for excavation by Muhhamed K.K., assisted by T.J. Alone, D.P. Sinha, K.C. Srivastava, D.N. Sinha, Manoj Kumar Dwivedi, Bhagirathi Gartia, M.P. Singh, Avinash Kumar and Rajnis Raj.

A terraced-brick stupa was exposed completely. The lower terrace, measuring 29m x 25 m, about 2 m in height, is provided with buttress wall at a regular interval of 2 m to 3 m. On the eastern side is a robber's trench filled with stone rubbles and earth. The upper terrace is formed of construction of brick chambers attached to an apsidal brick structure on the west, both filled with earth and stone rubbles. The apsidal structure measures 13.20 m x 2.40 m and resembles to the one found at Jivakamravana in early excavation at Rajgir. Evidence of 5 cm thick lime-plastered floor was noticed on the southern side. There is evidence of lime-plaster on walls at places. The stupa is provided with a circumambulatory path at the ground level. The bricks used are generally 52x25x7 cm in size but some smaller bricks measuring 43x23x7 cm were also found.

The excavation yielded sherds of red ware, grey ware, NBP Ware and Kaolin ware, all made on fast rotating wheel. The shapes are vases, lids, lid-cum-bowls, sprinklers and storage-jars etc. Besides, a few fragments of soapstone pot were also found. Among the antiquities, beads of different variety, terracotta balls, toys and animal figurines, hopscotch and one fragmentary stone piece with an inscription in Brahmi character and incised bull figure are notable. On the basis of the above finds the site may be assigned to the early Mauryan period.

## GOA

### 12. Excavation at Chandor, District South Goa, Goa

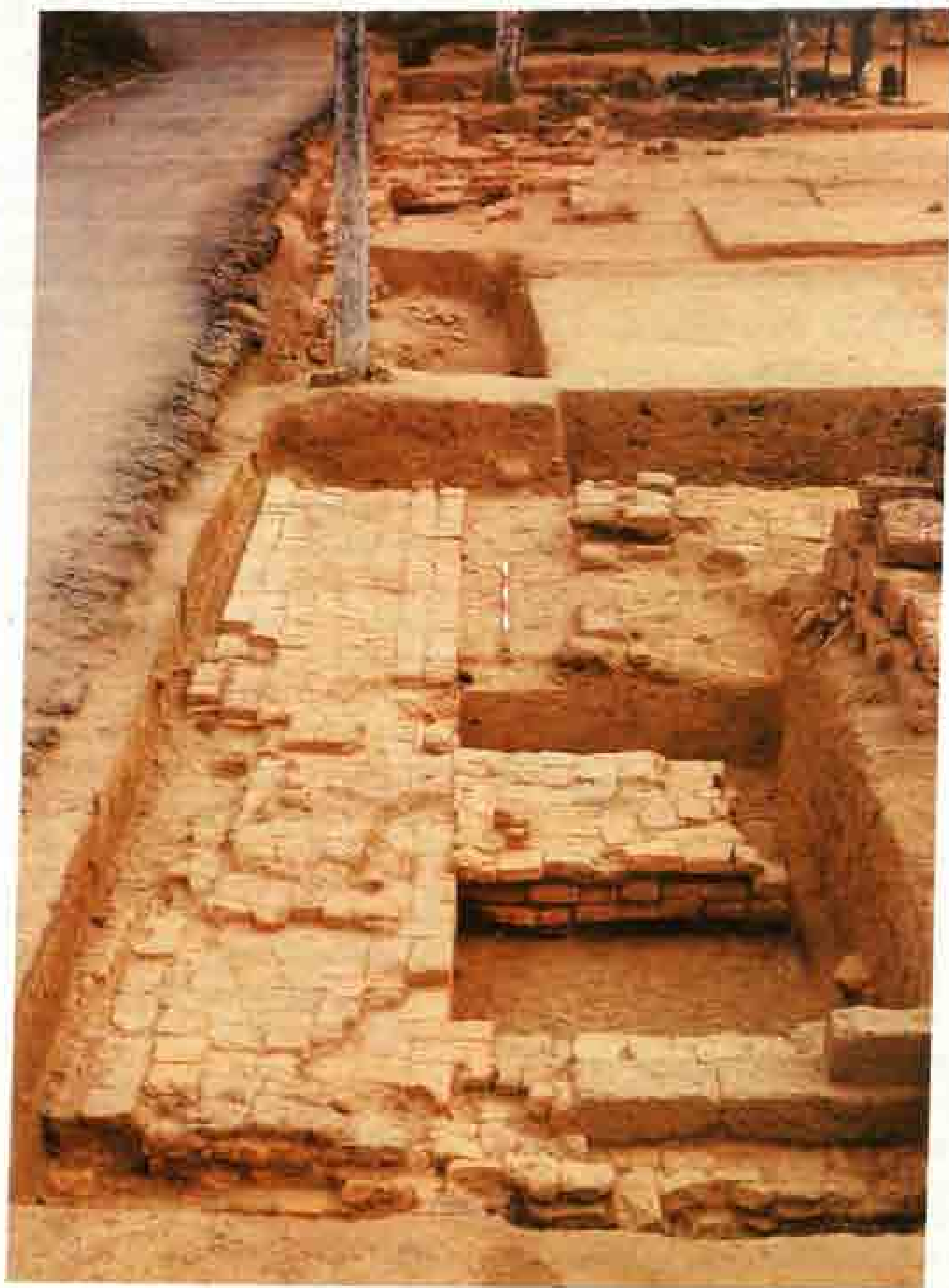
The Mini Circle Goa, of the Survey, under the direction of J.V.P. Rao, assisted by Manoj Kumar Saxena, Shriguru Bagi, M Kasturi Bai, Sirdeshpande, Giridhari Gaekwad, Vasudev, Premanand Naik, Pundalik and Prakash Goankar, conducted excavation at the Ancient historical city of Chandor, with the objective of tracing the extension of enclosure wall on the north and the south as also to establish stratigraphy in relation to the Temple trench. Besides, the rampart, a number of test pits across the mound were taken up wherever possible.

Three structural phases were encountered within the Temple trench in addition to a brick enclosure wall towards east.

Further excavation in the eastern area of the Temple trench during this season brought to light the full extent of the eastern enclosure wall and its return wall on the north. In addition to the above, a number of brick and stone structures were also unearthed. Both the sites *viz.,* Temple trench and east of it, revealed altogether five phases of structural activity.

Phase I comprised a cruciform structure, oriented in north-south direction is having a rectangular pillared-hall with two transepts on either side (east and west) from the central axis. The western transept must have housed a deity serving as *garbha-griha,* the eastern transept might have served as an entrance. The cruciform structure had a brick enclosure wall. The eastern side and a part of the northern side walls of the enclosure were unearthed. The eastern side enclosure wall was built in three parts (hereafter referred to as central, northern and southern walls) was running in north-south direction, having a width of 1.28m (pl. 23). The wall preserved three to six extant courses of bricks laid in mud-mortar. The bricks measure 28-31x14 - 18x6-7cm. The central wall was projecting towards east and was joined on both sides by the southern wall (1110 and 1130) and the northern wall (1195 and 1213). The length of central part wall is 5.08 m. This wall exactly falls in the central axis and situated at a distance of 21.5m east of the phase I cruciform structure and served as an entrance. The nature of construction and the size of bricks are comparable with the phase I cruciform structure. The southern wall (1110) was laid abutting the southern face of the central wall and extends to a distance of 13.56 m from north-to-south (1130). Towards further south the later brick shrine (1569) of phase III concealed the wall. The northern wall 1195 was built abutting the northern face of the central wall. It runs from south-to-north to a distance of 0.70 m, which was irregularly robbed off. Further this wall was completely robbed off for a distance of 4.26m and found missing. Further north this wall continued as 1213 runs to a distance of 12.64m. However, the northern wall measures 17.60m

Plate 23



*Chandor: eastern side enclosure wall, phase I*

Plate 24



Chandor: brick shrine, phase III

altogether from south-to north, takes a return towards west and runs to a distance of 3.00m. A later stone wall (1558) disturbed the return wall. Further probing is required to trace the continuation of the return wall. Altogether the length of the enclosure wall from north-to-south could be 40.60m including the central projecting wall. There is also a transverse wall 1447 abutting the western side of enclosure towards north-east corner. Its function can not be identified at present due to limited excavation. The south, west and the remaining part of the north side walls of the enclosure are yet to be traced.

The pottery from phase I consisted of dull red, pinkish red, burnished red and black wares with the forms like flat-based bowls with tapering profile in dull red, globular and bulbous vases, carinated vases of medium and big sizes with flared, splayed out, everted, beaded rims. The important find from phase I is a fragment of a *naga* plaque in soapstone obtained from the floor level of transverse wall (1447) which corresponds to late level of phase I, measuring 7.5 cm in length, 5.5 cm in width and 1.8 cm in thickness. It depicts a recumbent *naga* (snake) in relief. In-between the recumbent coils of the body, occur crisscross lines.

The phase II was identified in the Temple trench only marked by a rectangular *mandapa* (?) wall with a small protruding niche on the east, probably an entrance, built on the foundation of phase I structure. The rectangular *mandapa* measures 14.62 m east-west by 12.38 m north-south, while the protruding niche 2.38 m north-south by 1.41m east-west. The southern side of the *mandapa* wall was preserved with simple *adhishthana* mouldings. There is no evidence of *garbhagriha* in phase II within the walls of its *mandapa*. However, the western transept of phase I was situated towards the centre of the western end of the *mandapa* wall, which must have continued as *garbha-griha* even during the phase II. Otherwise, there should have been a separate *garbha-griha* for phase II also. Then the plan of phase II could be *garbha-griha* on the west with an enclosed *mandapa* wall and a protruding entrance on the east. In phase IIB the eastern end of the *mandapa* was added by a rectangular hall, enclosing the entrance, thereby extending the temple-complex further east. Later on a brick plinth (1055) was also provided right on the south wall of the protruding entrance wall, intended for a deity which must have served as an entrance deity before entering into the *mandapa.* The pottery of phase II remains the same as in phase I except the presence of grey ware.

A western shrine in the Temple trench, a brick room and a brick shrine (1569) towards east of the Temple trench represented the phase III (pl. 24). The western shrine is located within the walls of western transept of phase I within the *mandapa* walls of phase II with an entrance towards east. It measures 4.9m north-south by 4.5m east-west. It was built on the superimposed silt deposit above the ruins of earlier *garbha-griha* of phase I and perhaps phase II. This indicates that the sanctum remained in the same place during all the three phases. Besides the above shrine, in phase III, a brick room was built up on the entrance of the eastern side enclosure wall of phase I. The brick shrine (1569) is rectangular on plan built on the south-east corner of the same enclosure wall. The shrine was highly disturbed by the later activities while the eastern and the northern sides were preserved. The eastern side of the shrine is

completely exposed while on the southern and northern sides, are partly exposed. The eastern wall of the shrine preserved maximum courses of brick (14) with *tripattakumuda* mouldings on *adhishthana.*

The shrine was built of different sizes of bricks with mud-mortar. A few bricks in the plinth and in the bottom course of *adhishthana* show the sizes of the bricks used in the phase III of the temple trench, i.e., 35-36x17x6cm, while the top most brick course (wall) measures 16-18x12-13.5x5-6cm. However, the majority of the bricks used in the construction of the shrine are 28-31x15-17x5.5-7cm (phase 1 size). This shrine is stratigraphically later than the enclosure wall since the former was raised above the foundations of the later. The pottery of phase III consisted of sherds of dull red ware, grey ware, black ware and a deluxe ware, i.e., glazed ware of West Asian origin (Iran-Iraq). The glazed ware is characterized by copper sulphate colour on either side of the body and a thick, soft and fine cream core.

During phase IV the structures were predominantly of laterite stone such as laterite plinth and associated structures 1, 2 and 3 (platforms), rammed floors, all confined to the east of the temple trench. The platforms built of square wall with rubble fill must have housed the *nandi* with the plinth in front (pl. 25). The dimensions of plinth are lesser than the platforms, making one unit, perhaps meant for temple. Except foundation courses of these structures, other details are not known.

A rectangular solid laterite plinth (1049) was added at the eastern end of phase lib wall abutting to its eastern face. It measures 1.7m east-west by 1.5 m north-south and stands 0.52m high. This was provided by a step stone (schist) on further east and built of big laterite stone blocks. A stone *nandi* stands at present further east of the laterite plinth. The structure is cut from grey schist and measures 1.83m long, 0.90m wide and 0.83m high, damaged on the right hand side with head missing, stylistically dated to eleventh-twelfth century AD. The excavation around the *nandi* revealed three successive structural phases indicating a prominent activity at this place. The Structure-1 (1600) was located slightly north-east of the laterite plinth. It appears to be rectangular in shape running in east-west direction. It was partly exposed on the western and northern sides while the remaining was concealed under late laterite Structures 1335 and 1338. This structure was built of roughly dressed laterite stones with mud-mortar. The Structure-2 (1605) was found much disturbed with irregularly arranged stones probably indicating robbing activity on its north and the west. However, its foundation is partly intact on the northeastern side where Structure-3 was built abutting it. Both the structures are parallel to each other. The Structure-2 is lesser in dimension than the Structure-3. Structure-3(1335) revealed two stone walls, measuring 48cm making nearly 5m square on plan is located at a distance of 1.30m east of laterite plinth. The latter is in the central axis to the former, forming one unit. The above two Structures -2 and 3 might have housed the *nandi* at different times while the laterite plinth served as sanctum. Further digging may throw some more light in this aspect. There are rammed floors in two successive levels made up of crushed laterite granules with tile fragments, schist stone pieces and mud-mortar. The rammed-floors (1310, 1332) are laid abutting the above stone structures. In addition to the above,

**Plates 25-26**



25



26

*Chandor: 25, structures near nandi, phase IV* and *26, cutting across the rampart*

there are isolated stone walls, found on the northern part of enclosure wall, similarly a rectilinear stone chamber (1486) on the southern part of enclosure wall was built abutting the brick shrine. Phase IV is characterized by dull red and grey wares along with a few glass ware of different colours.

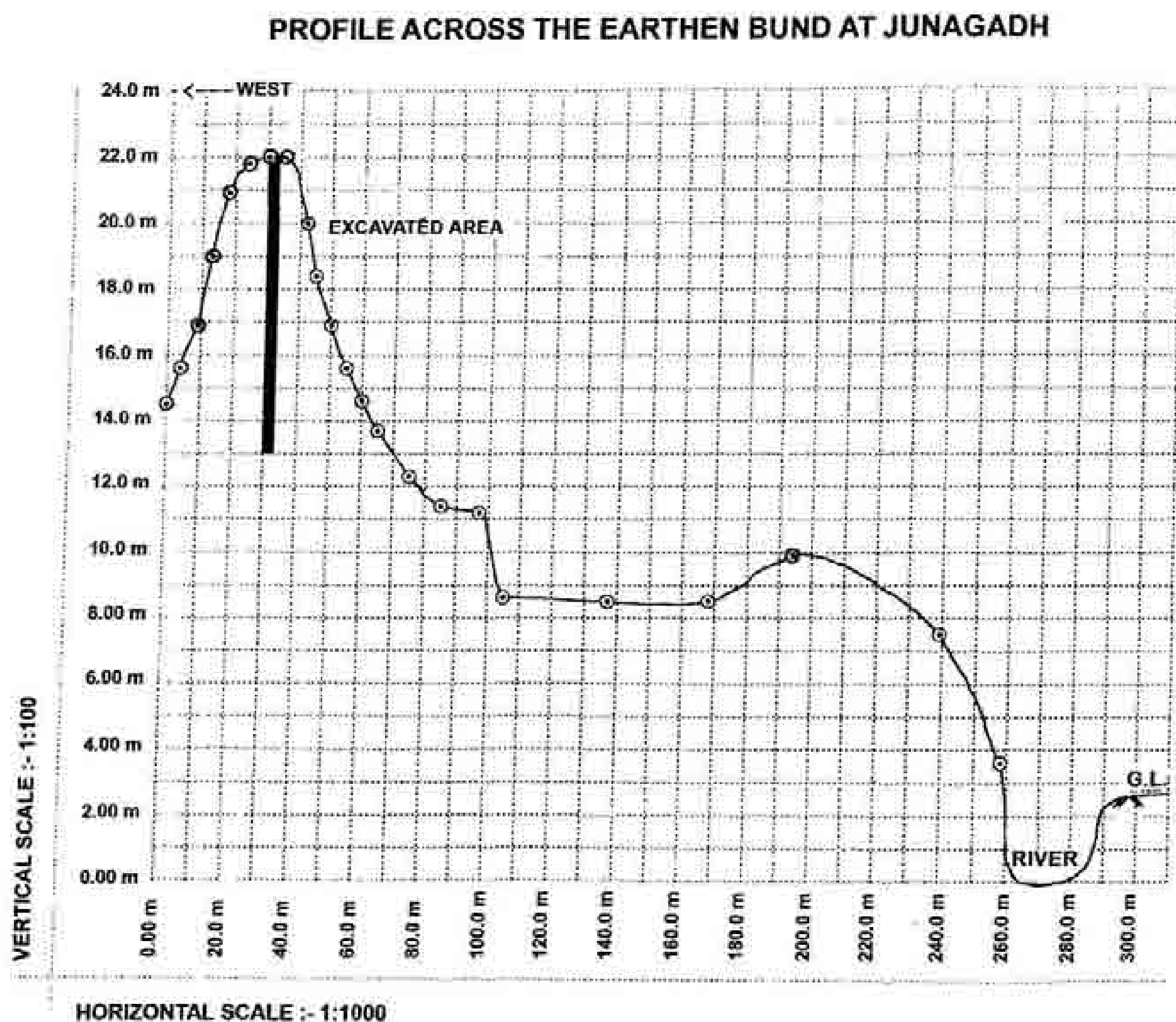
During phase V miniature shrines with rubble floors, some crude stone platforms and a well on the south-east were added in addition to the surviving structures of phase IV. The pottery of phase V is represented by a variety of porcelain ware with large number of glasswares of different colours and shades of Portuguese, Chinese and Islamic style.

There is a fortification along the western periphery of the habitation in Village Cotta Chandor while the eastern periphery is bordered by River Kushavati. The digging in the Rampart area revealed different phases of development of fortification wall at Chandor, which correspond to phases I, III and IV at the temple site (pl. 26). An area around 24m x 4 to 6m was subjected to excavation. There seem *to* be earthen ramp during the early stage, which was slightly enlarged by adding pinkish weathered laterite deposit retained by raising brick wall at different heights in the second stage. The sizes of the bricks used in the rampart tally with phase III of the temple site. In the third stage, the rampart was further repaired and were enlarged both in width and height by depositing huge quantities of brownish yellow sandy-silt, strengthened by blocks of undressed trap stone as veneering. The total width of the rampart ranges from *8.00* to 10.00m and the extant height ranges from 6.00 to 8.00m. It can be broadly assignable to the phases I, III and IV of temple site.

The area around the chapel Santiago was considered to be the entrance of the fort as the fort wall starts from the north of this chapel. Sometime back a brick wall was reported while digging a drainage system. A test pit measuring 3.50 x 2.00m was laid and found three phases of structural activity consisting of brickbats, tiles and pottery of dull red ware. The clearance of the overlying debris in front of the Chapel facing the road, yielded a brick wall running in north-south direction with a return towards east making a room like feature with brick flooring. The remaining part of the structure is hidden under the compound of the Chapel. This structure was built of bricks comparable to the one in phase III of the temple site. A triangular basalt stone piece consisting of three moulds, probably a goldsmith's mould, with a four handed seated goddess with other side shows a stylized swan facing left. On one of the sections of this stone piece is engraved a three lettered label inscription in the characters of fourth century AD.

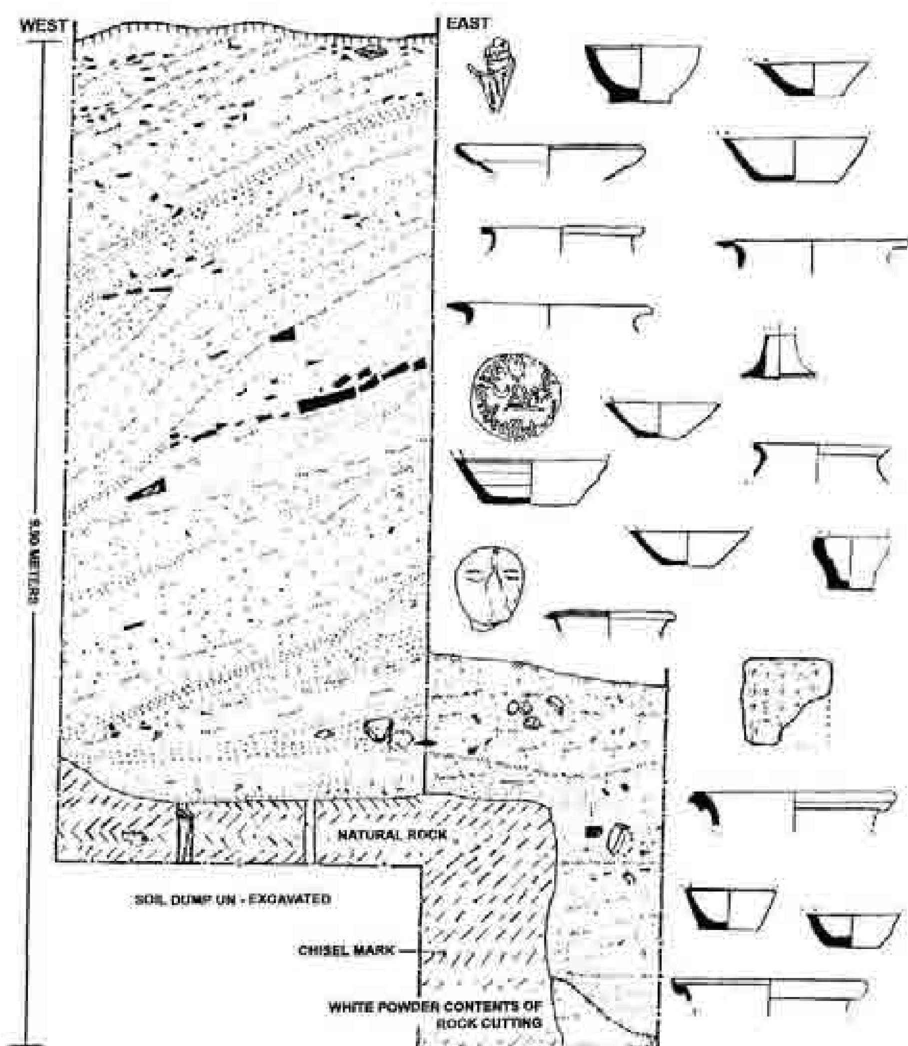
Some test pits were also laid in *Santavada, Durgabhat,* and *Chola* areas of Cotta Chandor. Though limited, the glazed ceramic from the temple site, chapel of Santiago, rampart and a test pit in *Chola* area, all indicate the practice of trade with the outside world during phase HI at the fort of Chandor.

From the study of earlier excavated remains, phase I structures of Chandor could be attributed to Bhojas (fourth - sixth century AD). The phase II brick structures were built right on the foundation of the phase I structures. The


PROFILE ACROSS THE EARTHEN BUND AT JUNAGADH
24.0 m
WEST
22.0 m
20.0 m
EXCAVATED AREA
18.0 m
16.0 m
14.0 m
12.0 m
10.0 m
8.00 m
6.00 m
4.00 m
2.00 m
0.00 m
G.L.
RIVER
0.00 m
20.0 m
40.0 m
60.0 m
80.0 m
100.0 m
120.0 m
140.0 m
160.0 m
180.0 m
200.0 m
220.0 m
240.0 m
260.0 m
280.0 m
300.0 m
VERTICAL SCALE :- 1:100
HORIZONTAL SCALE :- 1:1000



## SECTION OF THE MUD BUND AT JUNAGADH



Plates 27-28



27



28

*Junagarh, Khapra-Khodia: 27, western Kshatrapa coin, obverse* and 28, *reverse*

*adhishthana* moulding on the *mandapa* wall of phase II at Chandor may be compared with phase - 2 of the apsidal temple at Chejerla dated to *circa* fifth-sixth century AD. Hence phase II of Chandor is assignable to the sixth-seventh century. Phase ill with a large-scale structural activities in brick showing *tripattakumuda* mouldings of *adhishthana* on the square brick shrine of phase III closely parallel to *adhishthana* mouldings of the shrine, south-west of apsidal temple at Chejerla. The latter was dated to the beginning of seventh century AD to the later medieval period. Stratigraphically phase IV succeeds phase III and the structures of phase IV are built mainly of laterite stone at the site. The laterite stone Chamber, the plinth and the associated structures (platforms) might have been built during the early Kadamba times, since Konkan Mauryas were followed by the Kadambas in Goa. On the basis of the stylistic features of *nandi* sculpture at the site, phase IV may be assignable to the eleventh century AD.

**GUJARAT**

13. EXCAVATION AT KHAPRA-KHODIA (MUD-DAM), DISTRICT JUNAGADH

The Excavation Branch V, Vadodara, of the Survey, under the guidance of Shubra Pramanik, assisted by V.H. Parmar, N.B. Soni, J.B. Makwana, Subhash Chand, K.R. Malviya and B.M. Rohit carried out a trial-excavation at Khapra Khodia (Mud-dam) (21° 25'N, 70° 05'E), down to the top of the foundation rock below in two trenches measuring 5m x 5m sq each, with a view to confirm the sequence/date of the 'Mud Dam' related to Sudarsana Lake as referred to in the Rock-Edict and also as mentioned by the earlier scholars as besides studying the settlement pattern and artefacts of early historical culture.

The dam located on the northwestern side of Girnar bounded by Jogania hill on one side, and Upper kot on the other, touching almost the end of Khapra-Khodia Caves (southwestern side).

It is about 130m, in length, and from the river bed (10m from the ground level), 95m wide at the base, and 11.35m at the top level (fig.l).

It was noticed during the excavation that the mud bund was constructed on the sandstone natural rock chiselled with ends properly worked. The earth is yellowish in colour having fine silt deposit, small *kankar* and stones. The topmost level is marked by the graveyards of medieval period, characterized by the occurrence of the thick sturdy red ware, hand-made, as well as partly wheel-made containing gritty material and ill-fired (fig.2). The other types are dull red ware, red polished ware and micaceous ware. Some of the sherds bear simple painting in black. The important shades include bowls of different forms with variations, vases, dishes sprinklers and storage-jars. Some of the sherds contain graffiti marks. Besides, animal bones were also recovered, which require further research. Other important antiquities are terracotta figurine, anthropomorphic form, bangle pieces, inkpot, discs and skin rubber with chevron design. Another important find is a silver coin, showing bust of the king on the obverse and three arches forming a *chaitya* (hill) surmounted by crescent and another crescent on the left side, with an orbed star on the right side on the reverse. The coin is bordered by dots. The legends in Brahmi and Greek characters, read as *'putrasa'* probably the king Chastana (pls. 27-28).

Plates 29-30



29



30

*Ambadevi: 29, hero-stone, early medieval* and 30, *Dhumkal: hero-stone*

14. EXPLORATION IN DISTRICTS ANAND, BHARUCH, GODHRA, NARMADA, SIJRAT AND VADODARA

Sporadic explorations was also carried out on the banks of Rivers Mahi, Narmada and Tapti in order to assess the significance of the area, by a team laid by Shubhra Pramanik, of the Excavation Branch V, Vadodara, of the Survey. The list of sites are as under:-

| District | Village/Site | Nature of remains |
|---|---|---|
| Anand | Bakrol | Sculptures in a temple-complex, *circa* ninth-tenth century |
| Bharuch | Chiklota | Hero-stone, fifteen century AD |
| -do- | Dhorivav | Late medieval *vav* |
| -do- | Panetha | -do- |
| -do- | Raisingpur | -do- |
| Godhra | Diyapattan | Early medieval sculptures |
| Narmada | Ambadevi (siyali) | Hero-stone (pl. 29) |
| -do- | Bijalipani | -do- |
| -do- | Devmogra | -do- |
| -do- | Dumakhal | Series of hero-stones *circa* fourteenth-fifteenth century (pl. 30) |
| -do- | Gajargota | Hero-stone |
| -do- | Gangapur | Ruins of vav, late medeival |
| -do- | Kuklada | Medieval settlement |
| -do- | Mosit | Hero-stone |
| -do - | Ralda | -do- |
| Swat | Valavi | -do- |
| Vadodara | Pingalwada | Red ware, grey ware, coarse red wan |



**EXPLORATION SHOWING THE PRINCIPAL SITES IN AND AROUND GIRNAR HILLS, DISTRICT JUNAGADH (GUJARAT)**

N

JUNAGADH R.S.

TALAV

TORNA

GUJARAT

15. EXPLORATION IN GIRNAR VALLEYDISTRICT JUNAGADH

The Excavation Branch V, Vadodara. of the Survey, under the direction of Shubhra Pramanik, assisted by V.H. Parmar, N.B. Soni. J.B. Makwana, Subhash Chand, K.R. Malviya and B.M. Rohit resumed exploration with a view to assess its archaeological importance for excavation and further research; to understand the settlement pattern of early historical period; to confirm the sequence/date of the "Mud-Dam" related to Sudarsana Lake as referred to by the earlier scholars; and also to evaluate the region based on the Junagarh Rock Edicts.

The exploration was based on the study of Rock Edict, and also by implying the study of Remote Sensing Map (fig.3).

Exploration brought to light a series of ancient sites of early historical interest indicating the settlement of early historical people who lived particularly on the banks of cither the small streams/river, which ultimately joined the main river i.e., Sonrekh. Lol and Gudanjali.

In selecting a place for their settlement, the inhabitants stressed importance to the factors such as: (a) hill range (small or big) in the vicinity; (b) meander of the stream; (c) group of small streams joining ponds; (d) vast stretch of land; (e) distance between one site to the other varied from 2-3 km approximately and if one of these factors did not satisfy, the inhabitants avoided the place. And large streams too were not favoured by these people. However, further exploration might reveal more important aspects. In certain cases, it was also observed that early historical settlements were inhabitated or reoccupied by later period.

The details of sites with archaeological remains are as under:-

| ***Village/Site*** | ***Nature of remains*** |
|---|---|
| Amargadh (khadiya) | Scattered bricks of post-Mauryan period measuring 4O.\28x7cm |
| Gadha Kheen (21°31´N;70°28'E | Early historical, step-well, Brahmanical sculpture of *gaja-Lakshmi* |
| Gadhesing-ka-Dongar (21°28'N;70°29'E) | Early historical remains |
| Hazam Chaura (21°32'N;70°31'E) | Scattered architectural members of early historical period, depiction of *chaitya* motif on stones and a few red ware sherds |
| Jogania Hill (Present Shiva Temple) (21°33´N;70°29´30´E) | Scattered architectural members of Gupta period including cross capital (pl. 31) |

Plates 31-32



31



32

*Jogania hill:* 31, *Siva temple site* and 32, *Matarvaniya: sapta-matrikas*

Plates 33-34



33



34

*Surajkund:* 34, *well, Maurya period* and 34, *bricks, Maurya period*

**Fig. 4**

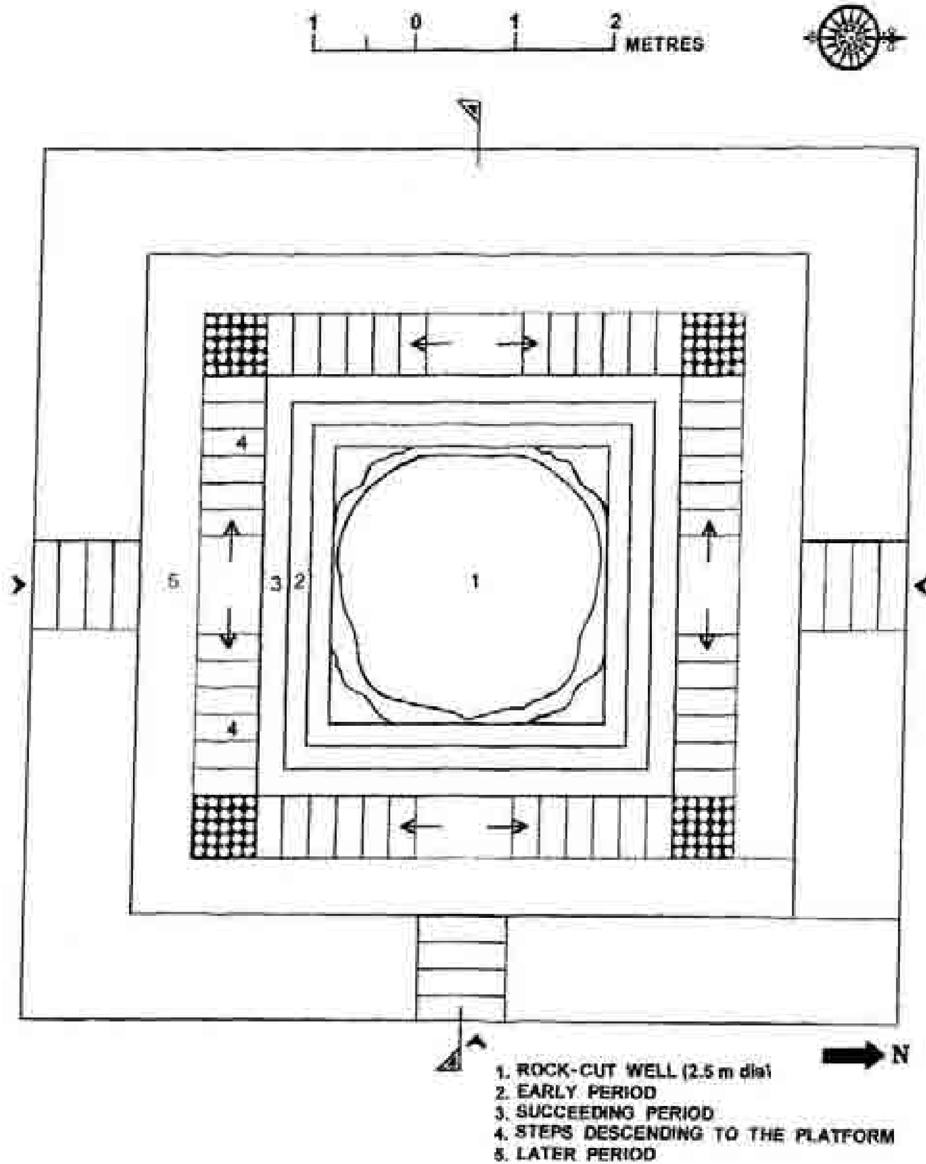
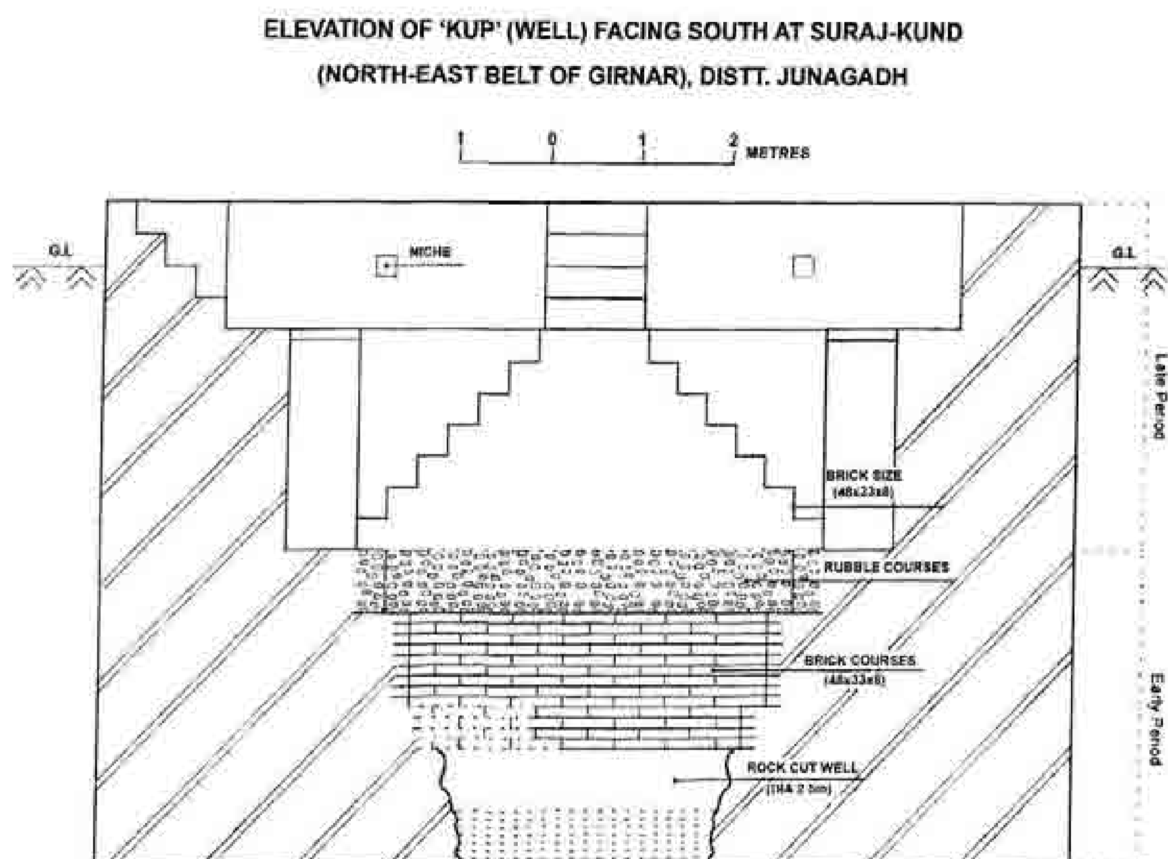

PLAN OF MAURYAN 'KUP' (WELL) AT SURAJ - KUND
(NORTH - EAST BELT OF GIRNAR HILLS)
DISTT. JUNAGADH
1 0 1 2 METRES
1
2
3
4
5
N
1. ROCK-CUT WELL (2.5 m dia)
2. EARLY PERIOD
3. SUCCEEDING PERIOD
4. STEPS DESCENDING TO THE PLATFORM
5. LATER PERIOD

**Fig. 5**


ELEVATION OF 'KUP' (WELL) FACING SOUTH AT SURAJ-KUND
(NORTH-EAST BELT OF GIRNAR), DISTT. JUNAGADH
1 0 1 2 METRES
G.L.
NICHE
G.L.
Late Period
BRICK SIZE
(48x23x8)
RUBBLE COURSES
BRICK COURSES
(48x33x8)
Early Period
ROCK CUT WELL

| *Village/Site* | *Nature of remains* |
|---|---|
| Jina-baba-ki-Madhi (21°32'N;70°31'E) | Early historical remains with three small circular structures (stupa ?) |
| Kachuliya Guna (21°30'N;70°33'E) | Early historical |
| Lakhaphulani-ki-Medhi (Sukhanala) (21°32'N;70°33'15"E) | Stupa of post-Mauryan period, bricks with marks of game-board |
| Lakshman Tekdi | Remains of cave (early historical period), marked by red ware |
| Matarvaniya (Jogania Hill) (21°33'N;70°29'15"E) | Sculptures of two-armed *Sapta-matrikas* in seated position, datable to the post Mauryan period (pl. 32) |
| Mathura (21° 28.'N; 70° 30'30"E) | Settlement site of early historical period represented by red ware |
| Meharyas Timaba | -do- |
| Soni-nu-vadiu (21°32'N;70°30'E) | Settlement site of early historical bricks measuring 4x32x8 cm; red ware, terracotta bangle pieces and roof tiles |
| Suraj-Kund (21° 32'N; 70° 33'E) | Brick well of early historical period (pl. 33), Mauryan period brick with certain symbols like *chaitya* (pl. 34), conch mark,etc.(figs. 4-5) |

**16. EXPLORATION IN DISTRICT JUNAGADH** SURVEY, UNDER THE VILLAGE-to-village survey

S.S. Parekh, of the Vadodara Circle, of the discovered the following remains in Vanthali taluk.

| *Village/Site* | *Nature of remains* |
|---|---|
| Dhankuia | Late medieval Siva Temple |
| Gathila | A temple dedicated to Siva known as 'Bhaumesvara Mahadeva' of late medieval period |

| *Village/Site* | *Nature of remains* |
|---|---|
| Godai | Step-well having three storeyed-pavilion with one entrance facing west. On plan, it is 'L' shaped. Every floor has one niche on either side of wall. It belongs to *circa* fifteenth-sixteenth century AD<br>Temple located near the entrance of village consists of *mandapa, antarala, garbha-girha and sikhara* of Nagara style. It is a Saivite temple known as Godesvara Mahadeva and outer wall of the temple is carved with Saivite gods and goddesses. Stylistically, it belongs to *circa* fifteenth century AD |
| Kajalia (Mota) / Kajalia (Nana) | Hero-stones of early nineteenth century |
| Khorasa | Hero-stones of nineteenth century |
| Koyali | Late medieval remains with gate having complete set of door; Math of Mahant of nineteenth century; bronze image of Ambika having four arms, shown seated in *arddhaparyankasana* pose on a lion. An inscription is engraved on the rear side of image and can be dated to *circa* eighteenth century |
| Lusada | More than twenty hero-stones noticed near the entrance of village, datable to *circa* eighteenth-nineteenth century AD. Remains of a Siva temple **having** *linga with yonipitha* datable to the late medieval period |
| Shapur | Medieval fortification with gate, with wooden **door and** iron nails; remains of two temples dedicated to Siva *(circa* fourteenth-fifteenth century); Begum Mahal and mosque **datable** to *circa* eighteenth-nineteenth century |

## HARYANA

### 17. EXPLORATION ALONG THE RIGHT BANK OF RIVER YAMUNA, DISTRICTS KARNAL, KURUSHETRA, PANIPAT AND YAMUNA NAGAR

In the course of exploration along the right bank of River Yamuna in Haryana, M.S. Chauhan, Jasmer Singh, Jitendra Sharma, Vinod Kumar, Baldev Singh, Rajesh Bakshi of the Chandigarh Circle, of the Survey, under the overall supervision of C. Dorje, surveyed one hundred and fifty-four villages out of which twelve villages

are of archaeological interest. The details are as under:

| District | Tehsil | Village/Site | Nature of remains |
|---|---|---|---|
| Karnal | Gharaunda | Panauri . | Ancient site with sherds of glazed ware, toycart wheel etc. of early medieval period |
| Kurukshetra | Ladwa | Ban | Siva temple with wall paintings, late medieval period |
| -do- | -do- | Chhalaundi | - do - |
| Panipat | Panipat | Garsh Sanrai | Ancient mound with dull red ware |
| - do - | Samalakha | Jaurasi Khalsa | Ancient mound having red ware, red polished ware, dull red ware |
| Sonepat | Sonepat | Karsana Kalan | Ancient sites having sherds of late Harappan red ware. Painted Grey Ware (PGW) and Kushan red ware, and dull red ware |
| - do - | - do - | Rathlana | Siva temple with painting, depicting scenes of Siva-Parvati. Radha-Krishna and Rama-Sita etc. late medieval period |
| Yamunanagar | Jagadhari | Buriya | Fort with bastions at four corners belonging to the late medieval period |
| -do- | -do- | Damla (re-explored) | Ancient site and group of temples with paintings, medieval and late medieval period |
| -do- | -do- | Ghespur | Ancient site having sherds of PGW, NBPW and red ware |
| -do- | -do- | Jatlana | Temple dedicated to Radha-Krishna, late medieval period |
| -do- | -do- | Partasgarh | Ancient site with Red Polished Ware and dull red ware |

## HIMACHAL PRADESH

### 18. EXPLORATION IN BANJAR AREA, DISTRICT KULLU

Under Problem Oriented Survey Scheme, M.S. Chauhan, Sanjay Manjul, Rajesh Bakshi. R.K. Sapru, Anil Kumar under the supervision of C. Dorje, of the Chandigarh Circle, of the Survey, resumed exploration in the Sainj Valley in District Kullu and located fourteen villages of archaeological interest—the details of which are as under:

| ***Village/Site*** | ***Gram Panchayat*** | ***Nature of remains*** |
|---|---|---|
| Batahar | Banogi | Renovated pent-roofed wooden temple dedicated to Durga, four brass moharas assignable to early medieval period |
| Dhalogi | -do- | A newly renovated pent-roofed temple with a wooden door-frame of medieval period |
| Kathyaugi | - do - | A newly renovated pent-roofed temple dedicated to Punkdrik *rishi* having eleven brass *mohras* assignable to early medieval period and metal image of Vishnu belonging to the twelfth century AD |
| Manyashi | - do - | Wooden pent-roofed temple dedicated to Punkdrik *rishi,* metal *mohra,* brass bell and incense burner, all assignable to medieval period |
| Suchain | | Wooden pen-roofed temple (pls. 35-37) having twelve metal *mohras* (pl.38) assignable to late medieval period |
| Dhalhayara | | Two pent-roofed temples, one dedicated to Lakshmi Narayana and two other to Ashapuri (partly renovated) belonging to the late medieval period (pl. 39) |
| Gohi | | Pent-roofed temple dedicated to Kamalamata of medieval period; a miniature stone temple of tenth-eleventh century AD, stone sculpture including *amalaka* and image of Vishnu on Garuda assignable to medieval period |
| Jauli | | A miniature stone temple assignable to early medieval period; loose sculptures including image of Siva-Parvati on'Nandi, Vishnu on Garuda, Brahma on *hamsa,* lintel with Ganesa in the centre assignable to early medieval period |

Plates 35-36



35



36

*Suchain:* 35, *Tirtha devata Temple* and 36, *carved wooden panel*

**Plates 37-38**



37



38

*Suchain:* 37, *Tirtha devata Temple,wooden door-frame* and 38, *brass moharas*

Plates 39-40



39



40

*Dhalhayara: 39, Thakur castle and 40, Sainshar: Manu Maharaja Temple, wooden panel depicting Vishnu on Garuda*

Plates 41-42



41



42

*Sainshar:* 41, *Manu Maharaja Temple, inscribed ceiling panel* and 42, *Shangar: Shangchul Devata Temple*

Plates 43-44



43



44

*Talhayara:*- 43, *Thakur castle* and 44, *wood carving*

| ***Village/Site*** | ***Gram Panchayat*** | ***Nature of remains*** |
|---|---|---|
| Raila | Badaan | Wooden pent-roofed temple assignable to medieval period, a small stone temple dedicated to Lakshmi Narayana belonging to the eleventh century AD |
| Dhaugi | Bunga | Five pent-roofed (renovated) temples assignable to the late medieval period; a stone image of Naina Devi and Vishnu of late medieval period |
| Shainshar | Shainshar | Five-tiered Pagoda style temple dedicated to Manu Rishi and sculptures belonging to early medieval period (pls.40-41) |
| Shangar | Shangar | Wooden pent-roofed temple assignable to late medieval period (pl .42) |
| Talhayara | -do- | Pent-roofed temple (pls.43-44) dedicated to Raghunatha (late medieval period); a miniature stone Siva temple with sculptures on stone slab of eleventh century AD |

## JAMMU AND KASHMIR

### 19. EXCAVATION AT AMBARAN (AKHNUR), DISTRICT JAMMU

In continuation of the previous season's work (*1999-2000,* pp. 52-63), Srinagar Circle, of the Survey, under the direction of B.R. Mani, assisted by P.C. Chowdhary, V.C. Sharma, P.R. Prasad, Samir Diwan, M.K. Joshi, P.L. Meena, Gulzar Singh, B.S. Jamwal, Raghbir Singh, R.K. Kaul, Arunji Siddha, V.K. Kaul, A.K. Kaul, S.K. Bhat and Sunil Kumar Jha, resumed excavation (fig. 6) at the hamlet Pambarwan of Ambaran near Akhnur on the right bank of River Chenab to know the association and stratigraphic position of the famous Akhnur terracotta heads found from the site in the past with the Buddhist monastic establishment there and to study the lay out and planning of the site, believed to be the only early Buddhist site in Jammu region. In all 42 quadrants of 16 squares, each square measuring 10 x 10 m (fig. 7) were excavated in both the seasons (pl. 45).

Burnt brick structures of various phases were encountered in almost all the trenches which were found damaged mainly due to three reasons - repeated floods in Chenab, cultivation and unauthorized digging operations in the area

in the past. A preliminary study of the site revealed the cultural sequence of the following periods

Period I : Pre-Kushan Period *(c.* second-first century BC)

Period II : Kushan Period *(c.* first to third century AD)

Period III : Post-Kushan (Gupta) Period *(c.* fourth-fifth century AD

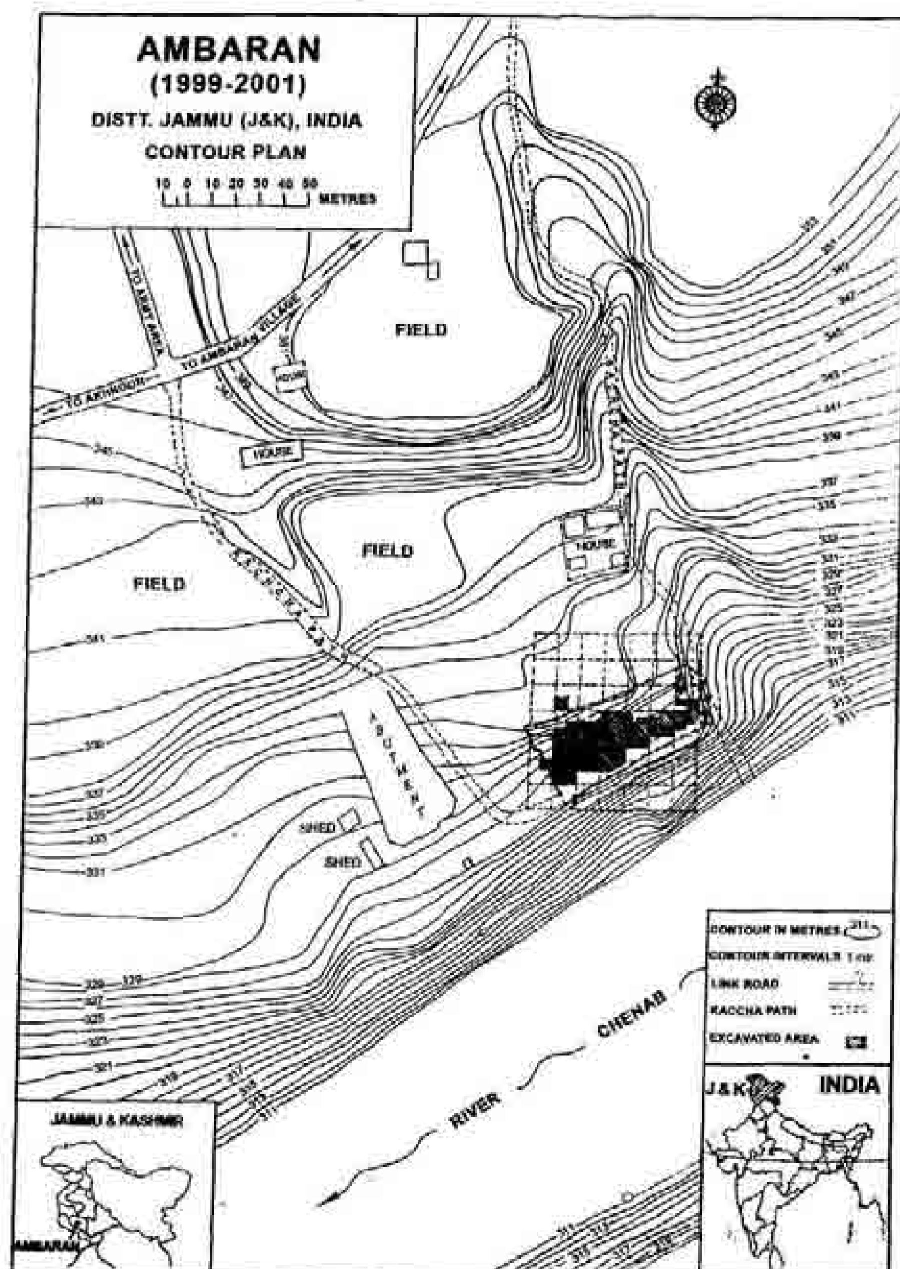
Period IV : Post-Gupta Period *(c.* sixth-seventh century AD)

No structural remains of Period I were found. A separate horizon of the period was noticed in Square ZA1, Qd4 over the natural soil. The thin deposit contained grey were sherds of bowls and red ware vases (fig. 8). The deposit was also noticed in Sq C3, Qdl below the foundation of the stupa.

Buddhist monastic establishment was founded at the site in Period II. A stupa, votive stupas and walls of a monastery and another long structure were exposed which are all built of burnt brick masonary with bricks usually measuring 36 to 38 x 24 x 6 to 7 cm (pl. 46). After partially exposing two squarish structures in Quadrants 3 and 4 of Square B2 during the first season, it was inferred that they may be bases of stupas. The same was confirmed during the second season when the larger of the two structures was found to be a base of a 6 x 6 m stupa and smaller one being a votive stupa, measuring approximately 1.50 x 1.50 m. Besides above, two more 2 x 2 m square bases of votive stupas were exposed on the western side of the main stupa towards south of the former votive stupa. Parallel to the three votive stupas was located an elongated stone paved foundation. Belonging to the same period were remains of three more votive stupas towards south of the main stupa. The original enclosure brick wall of the monastery was exposed upto a length of 32 m running parallel to the main stupa towards its north which had undergone additions and alterations during the following periods. Another brick wall having a thickness of 1.05 m belonging to an elongated structure of this period was exposed upto a length of 25 m to the east of the enclosure wall of the monastery in almost the same alignment.

Remains of the another large stupa were located in Quadrants 2 and 4 of Square Fl and Quadrant 1 of Square Gl which belong to the same period having typical Kushan bricks. The measurements suggest that the square base of this stupa was 10 x 10 m which requires to be exposed in future excavations. Construction of this stupa is in the same manner as of 6 x 6 square stupa having apron and brick veneer work encasing the core which is made of pebbles mixed with earth. Remains of another possible stupa were noticed during first season in Square Cl where a large tapering structure with its fallen superstructure was noticed. The red ware of the period comprised bowls, basins, vases, sprinklers, lids including ink pot type of lids, lamps and spouted pots. The important antiquities of the period include the reliquary and its contents with associated objects found along with it in the main stupa which are described elsewhere ahead into details owing to its exceptional significance.

Remains of the structure with squarish plan were noticed in Quadrant 3 of Square B2 during the first season and its squarish nature was confirmed through a control pit in Quadrant 2 of Square B3 towards the close of the season and it was presumed that this structure may be part of a


AMBARAN
(1999-2001)
DISTT. JAMMU (J&K), INDIA
CONTOUR PLAN
METRES
FIELD
FIELD
FIELD
HOUSE
HOUSE
HOUSE
TO AKHNOOR
TO AMBARAN VILLAGE
TO ARMY AREA
ABUTMENT
SHED
SHED
RIVER
CHENAB
CONTOUR IN METRES
CONTOUR INTERVALS 1 m
LINK ROAD
KACCHA PATH
EXCAVATED AREA
J & K
INDIA
JAMMU & KASHMIR
AMBARAN



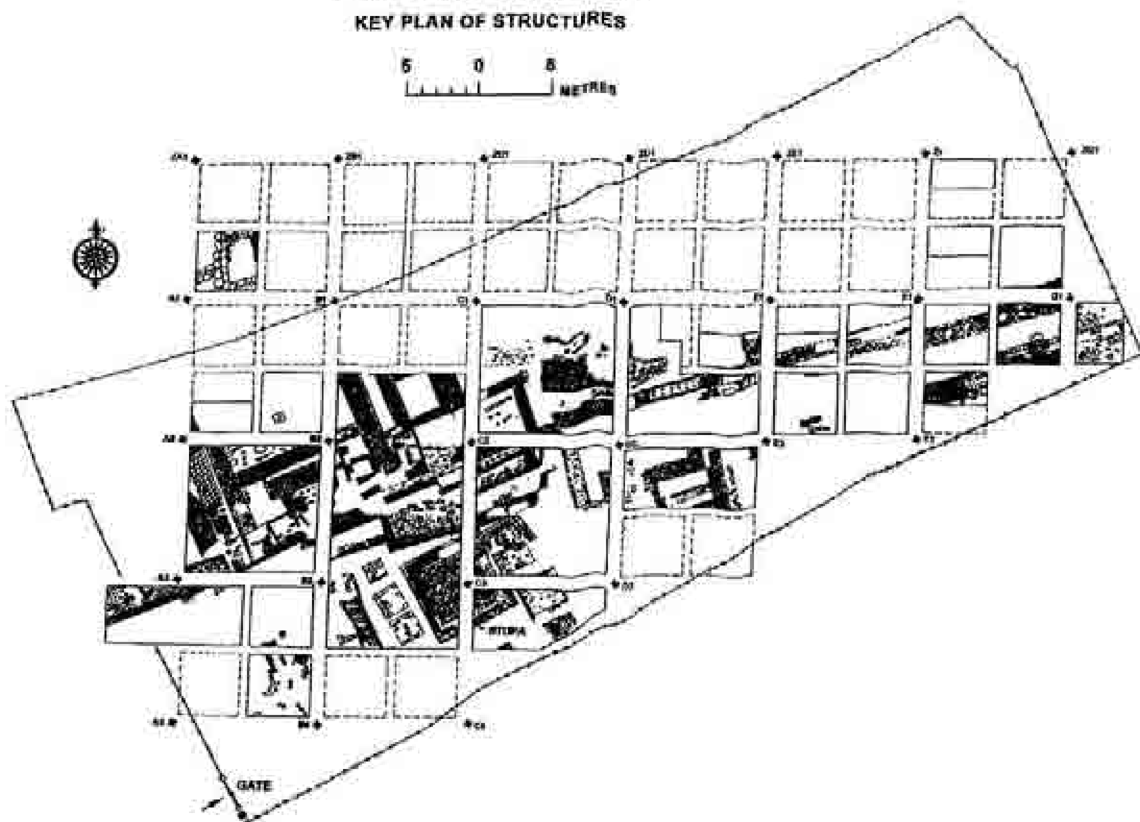
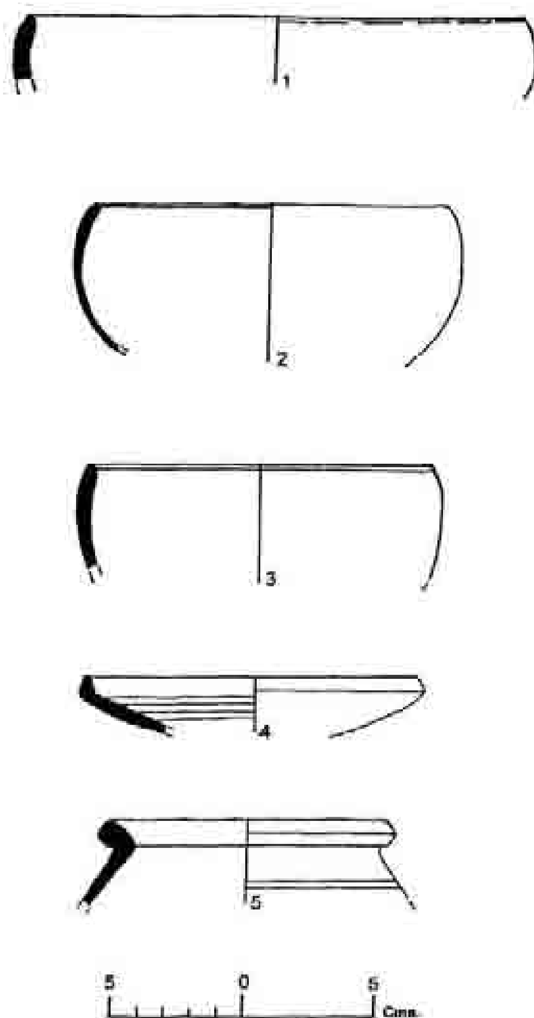
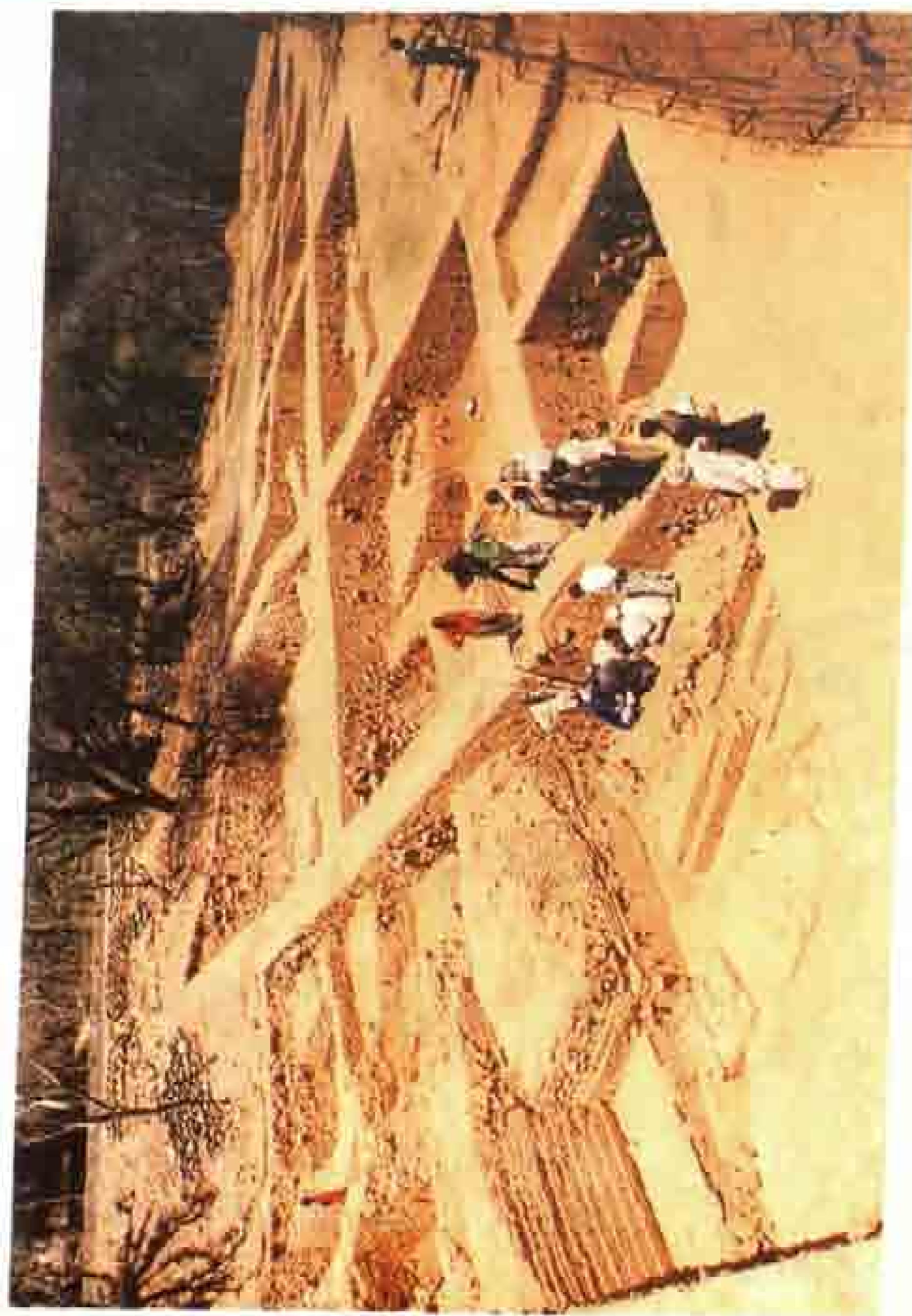

AMBARAN : 1999 - 2001
KEY PLAN OF STRUCTURES
5 0 5
METRES
GATE
STUPA

**Fig. 8**




*Ambaran : ceramic types, period - I*

Plate 45



*Ambaran: general view of trenches*

Plate 46



*Ambaran: stupa with votive stupa, Period II*

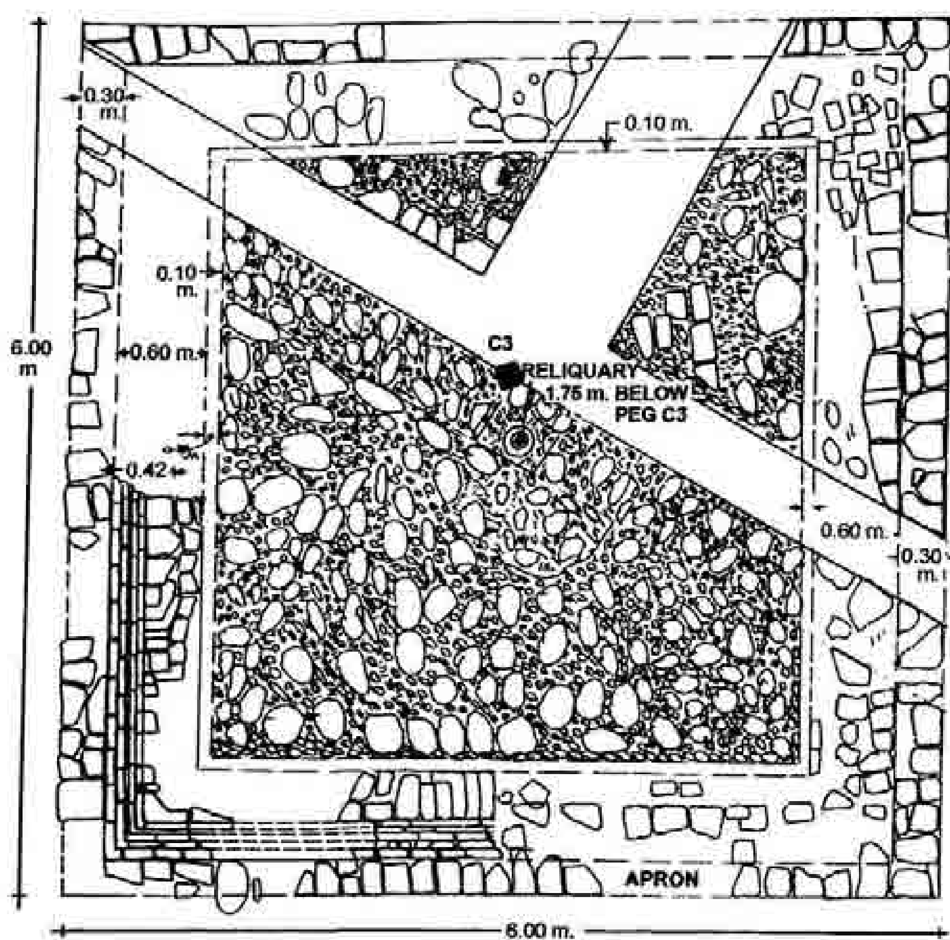


AMBARAN : 1999 - 2001







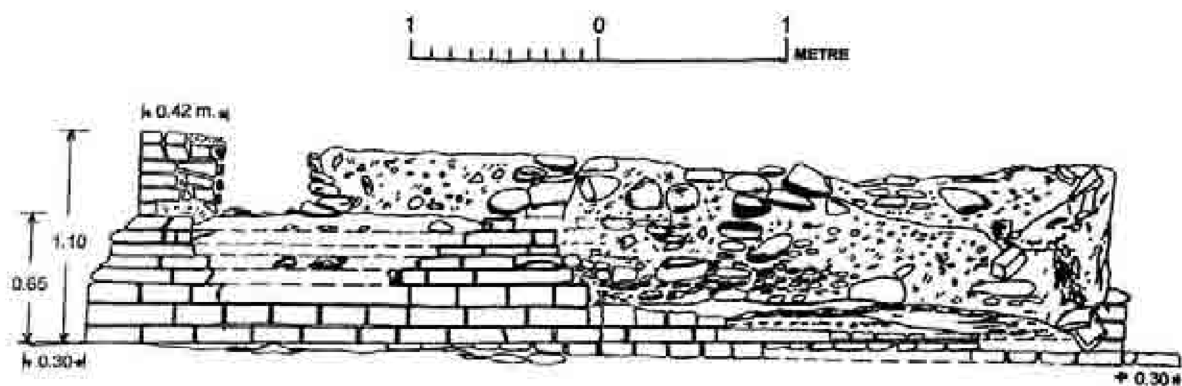




PLAN OF STUPA

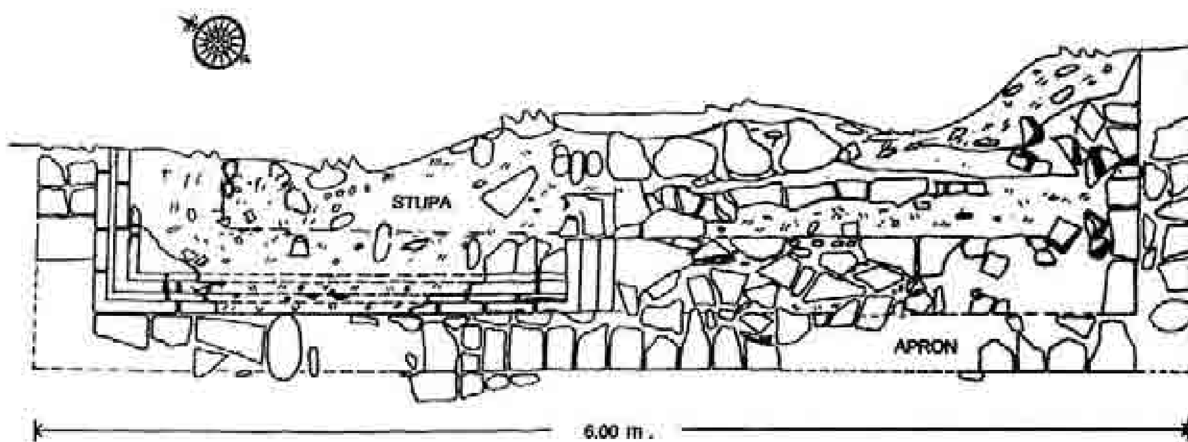
Fig. 10

AMBARAN : 1999 - 2001

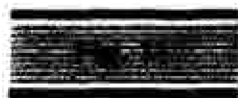
STUPA




ELEVATION FACING WEST




PLAN



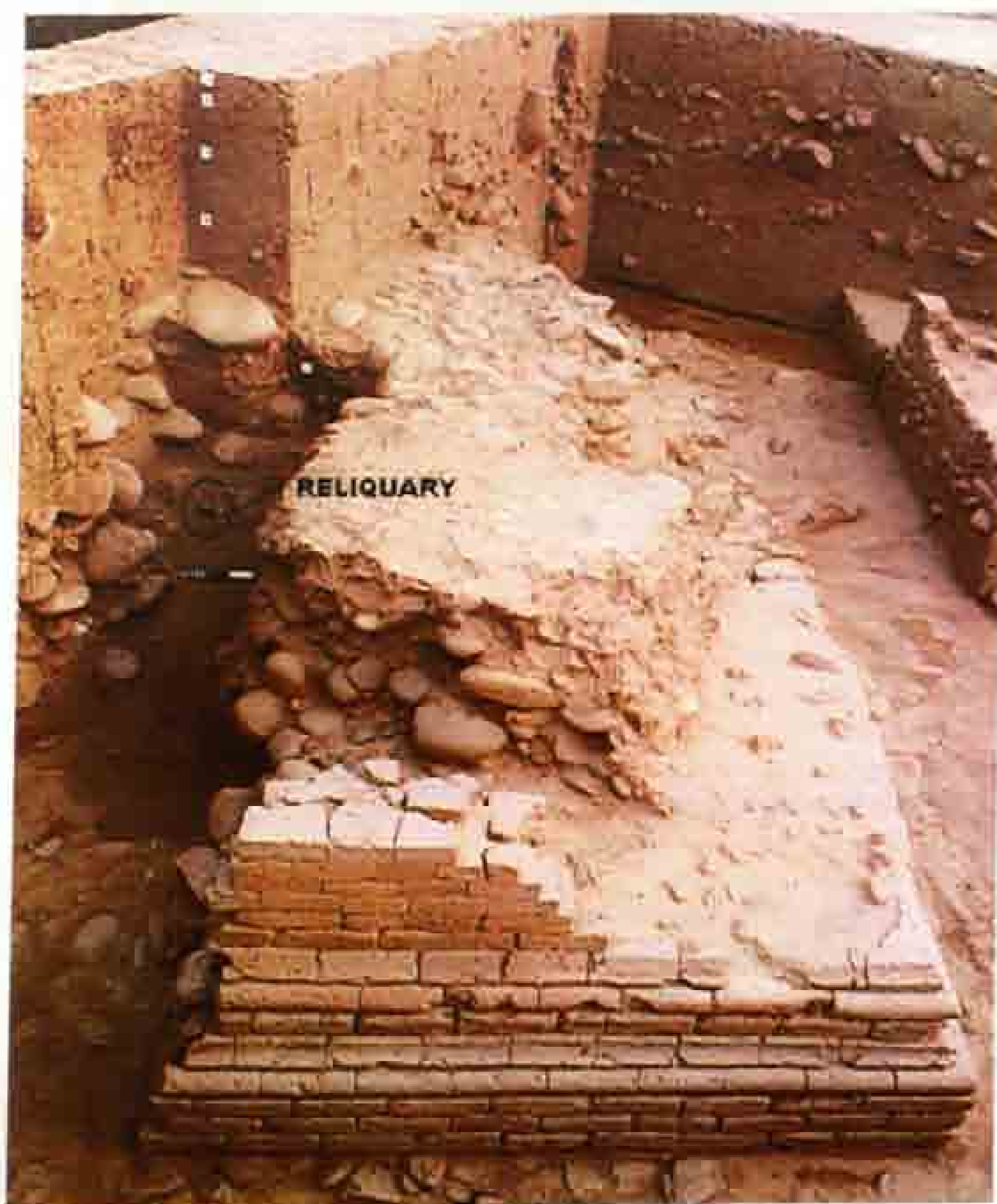
**RELIQUARY**
(Discovered on 22-24 April, 2001)

**PLAN** 0 5 mtrs.

**AMBARAN : 1999 - 2001**

**STUPA (CONJECTURAL VIEW)**

Plate 47




*Ambaran: stupa with reliquary, Period II*

Plate 48



*Ambaran: platform attached with stupa, Period II*

square base of a votive stupa with its extant maximum 14 courses of brick work with concave and convex sided moulded bricks besides plain ones at regular intervals. It was also noticed that the structure belongs to the Kushan period. Further excavations during the second season brought to light the complete plan (fig. 9) of the structure which was found to be 6 x 6 m square base of a stupa, not votivee one as it later yielded relic casket (pl. 47) with charred bones, suggesting its conception as a *Saririka* stupa. The measurement includes 0.30 m wide apron of stupa all around over which was constructed the brick veneer of the square base of the stupa in such a manner that it encases the core of the stupa comprising pebbles mixed with mud as in the case of some Taxilan stupas. The extant maximum height of the stupa is 1.10 m on its north and upto the height of 0.65 m mouldings were made, over which plain brick work continued (fig. 10). The brick veneer of the stupa base is 0.'60 m in thickness. The core has both small and medium sized pebbles. Decorated bricks having bands of dentil brackets and other decorated bricks of the drum and the *harmika* of the stupa, a red sandstone *yashti* and a few pieces of the wedge-shaped thin bricks suggesting their use in the *chhatravali* were found from the structural debris overlying the stupa remains. A conjectural view (fig. 11) of the stupa based on these data and evidence of Taxilan prototypes suggest that the stupa must have been nearly 9 m in height. A rectangular brick-paved platform (pl. 48) was found associated with the stupa on its eastern side over which some lamps were found amongst pottery suggesting the use of the platform for worship purpose.

Stupas belonging to the Saka-Parthian and Kushan periods in Taxila including those at Dharmarajika, Kalwan and Jandial monastic establishments depict similar constructional pattern visible in their elevation and plan. Decorative mouldings at the stupa bases at Ambaran and Jandial (A site) are remarkably similar. Another common feature between these Taxilan stupas and the stupa at Ambaran is in their core which is constructed of pebbles closely compacted with earth or pebbles set in mud. An interesting point to be taken care of in these Taxilan stupas is that they contain relic chambers and reliquaries and caskets have been found in a number of them. The Stupa J2 at Dharmarajika belonging to the first century AD had yielded a casket being a flat pyxis of grey schist which contained a small box of silver and had a small box of gold in it which contained some minute fragments of bone and also some beads in the casket. The stupa shrine Al at Kalwan had in its relic chamber a casket of schist covered with gold-leaf and twelve rosettes of thin gold sheet, fragments of bone, different beads and other objects including copper plate inscription of year 134 of Azes engraved in Kharoshthi. Sir John Marshall believed that in the fourth and fifth centuries it was usual to construct the relic chamber of large stupas high up in their dome instead of low down in their foundations and that is why the main stupa at Bhamala site belonging to the fourth-fifth century AD did not reveal any relic chamber around its base or in its foundation.

Inspired by the above Taxilan evidence, it was sure to get some relic casket in the stupa base at Ambaran. For this purpose the one metre baulk running north-to-south was retained and the one metre baulk running between pegs B3 and C3 was removed as the central point of the square base of

the stupa was measured and located a few centimetres south-west of the peg C3. All the precautions were taken to minimise the damage to the stupa and the main operation was taken up and as its northern brick veneer was already damaged during ancient period due to water How towards it from the north, a 0.50 m strip of the core of the stupa was removed to horizontally approach the centre. Simultaneously, part of the north-south baulk in its west having 1.0 m in length in north-south orientation with 0.50 m thickness on either side of the peg C3 was removed layer by layer so as to reach vertically upto the foundation level of the stupa.

A small chunk of earth along with an orange carnelian bead was found and soon a copper object was noticed . The sections (fig. 12) of the trench were trimmed and photographed and three dimensional recording was completed. Further scraping brought out several pieces of copper. The main copper object was removed which was found to be a heavily encrusted reliquary (pl. 49) with its broken lid. part of which was already attached with the body of the reliquary and the copper pieces found in the scraping were identified to be the remaining pieces of the lid which were scattered around the reliquary which was possibly crushed due to natural factors and earth pressure. As the lid was already found broken soil was seen set inside the reliquary in which some thin circular gold sheets were visible. The reliquary was found to be 2.4 cm high with its diameter being 5.6 cm.

The contents of the reliquary were slowly and carefully taken out which comprised -

(a) 30 circular thin sheets of gold with their diameter approximately between 1.2 cm to 1.4cm(pl. 50)

(b) 2 circular rimmed thin sheets of silver, possibly to keep gold sheets having the diameter of 2.1 cm (pl. 51)

(c) About 150 micro-beads of pearl

(d) 12 cylindrical coral beads

(e) 2 metallic micro-beads

(I) Oval shaped silver casket in two equal parts, but having their diametre 2.5 cm and 2.3 cm respectively so as to fit in with each other. Some liquid seems to have been applied over their edges and heated to fix the two parts together (pl. 52).

(g) A circular gold casket, again in two equal parts with their diameter 1.5 cm and 1.4 cm respectively was found already open inside the silver casket along with small pieces of charred bone and probably a minute part of tooth. Original}' it was also closed after applying some liquid and heating the round edges.

Some small bone pieces were found in the same level from the spot just outside the reliquary As already stated a carnelian bead was found there.

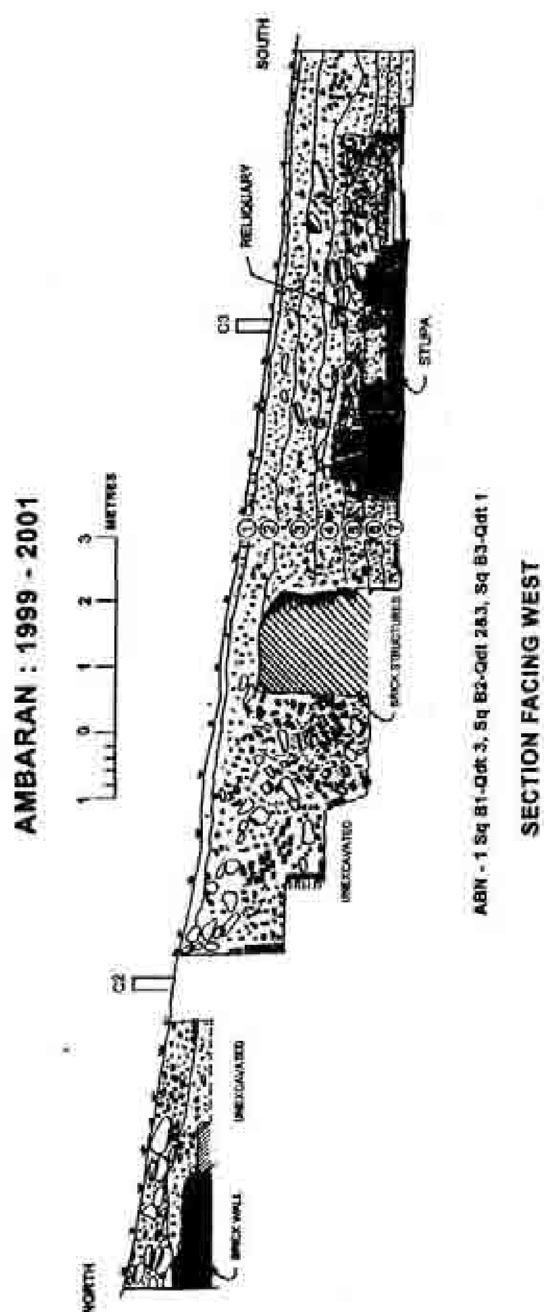
(h) 4 full and 6 broken circular thin sheets of gold as found in the reliquary making their total number to be 34 full and 6 broken parts.

(i) 1 bead of amethyst

(j) 3 encrusted copper coins, two of which are possibly Kushan issues which require chemical cleaning for their decipherment.

The above objects are definitely parts of the contents of the reliquary which were scattered at

**Fig. 12**



AMBARAN : 1999 - 2001
1 0 1 2 3 METRES
SOUTH
NORTH
RELIQUARY
C3
STUPA
BRICK STRUCTURES
UNEXCAVATED
C2
BRICK WALL
UNEXCAVATED
1 2 3 4 5 6 7
ABN - 1 Sq B1-Qdt 3, Sq B2-Qdt 2&3, Sq B3-Qdt 1
SECTION FACING WEST

Plates 49-50



49




50

*Ambaran:* 49, *copper reliquary with silver and gold caskets and charred bones, Period II* and 50, *circular gold and silver sheets from the reliquary, Period II*

Plates 51-52




51




52

*Ambaran: 51, micro-beads of pearl, Period II* and 52, *silver and gold casket, Period II*

the spot when its lid was crushed and gave way much earlier.

Two distinct structural phases of Period III were noticed, the first having structures with bricks measuring 27 x 27 x 7 cm in general and the second phase with bricks and brickbats of earlier structures reused, mostly in strengthening the walls which most likely suffered damages due to Hash floods in the river. Remains of an entrance of some important complex was found in Sq A2 where there was a concentration of terracotta figurines and their fragments which were all used for decorating the wall, probably the facade of the gate of the monastery (pl. 53). A stone pitched pathway leading towards north and flanked by brick wall was noticed. It seems that the entrance was blocked or narrowed during the next phase by putting a wall at the southern end of the pathway, parallel to it at the gate.

Terracotta heads, occasionally showing profile of the lace along with other fragments of torso, ornaments and drapery bearing marks of reinforcement have been found which were meant to stick to the plaster of the wall. Extensions of walls of the structures of Period III were traced in Squares Bl and B2, It was noticed that structures of the first phase were given extra support and also repaired at different stages during the second phase and even afterwards when they were damaged due to floods. The wall abutting the gate was traced in eastern direction in Qd 3 of Sq A2. Qds3 and 4 of Sq B2 and Qds 1 , 2 and 4 of Sq C2. It was observed that its tapering nature and projections were meant to save the structure from floods which were added to the original construction during the Period III in two phases. Towards west of the gate, the wall in the same alignment was traced in Qd 4 of A2. Qd 1 of A3 and Qd 2 of XA3 and was found still continuing. Maximum of 31 courses of bricks were found in it in Qd of Sq B2 of which the lower 21 courses belong to phase I and the top 10 courses to a later phase when it was repaired. The lower courses slightly project after three courses each giving the tapering nature to the wall and consist of full bricks while the top ten courses do not follow the same principal and were outcome of the repairs taken up in the second phase when bricks and brickbats were utilized to maintain the height of the structure in a haphazard manner. A few decorated bricks were also found reused in this repair work in the top courses.

A rectangular structure with its walls having the width of 0.70 m was exposed towards west of the large structure of Period II. From the floor of the rectangular structure chunks of lime-plaster were found lying upside down which suggest that they are the remains of the fallen stucco ceiling which was painted with red strips. Its northern wall was found damaged due to unauthorized digging probably by antiquity hunters in the past. Overlying the levels of Period III burning activity was also noticed in the sealing layers at some spots which is quite distinct in the northern section of Square C1, but it would be too premature to relate it to the invasion and destruction of the site by the Hunas as no other evidence is available in this regard. Some reed impressions were also found on clay lumps.

A 2 x 2 m square base of a votive stupa along with evidence of its circular superstructure was found in Quadrant 2 of Square C2 which belongs to the Period III. A rectangular brick platform with associated finds of iron slag in considerable quantity along with iron objects and clay pipes

Plates 53-54



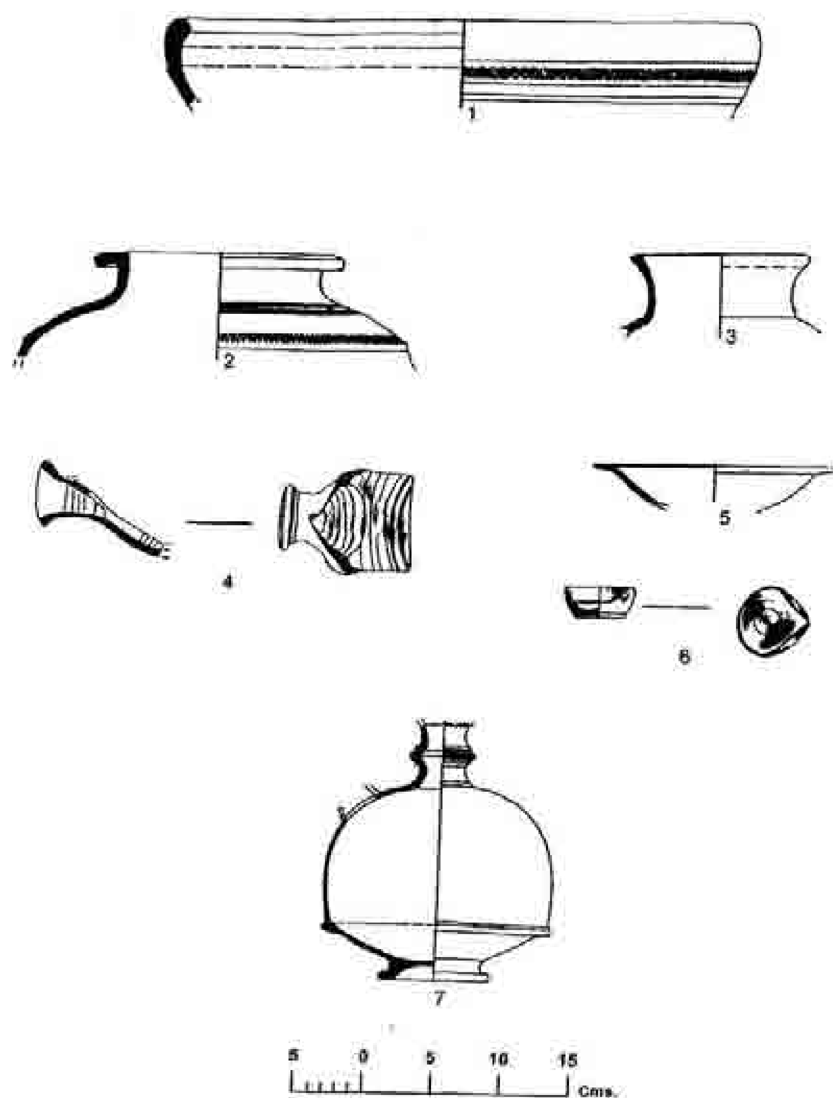
53



54

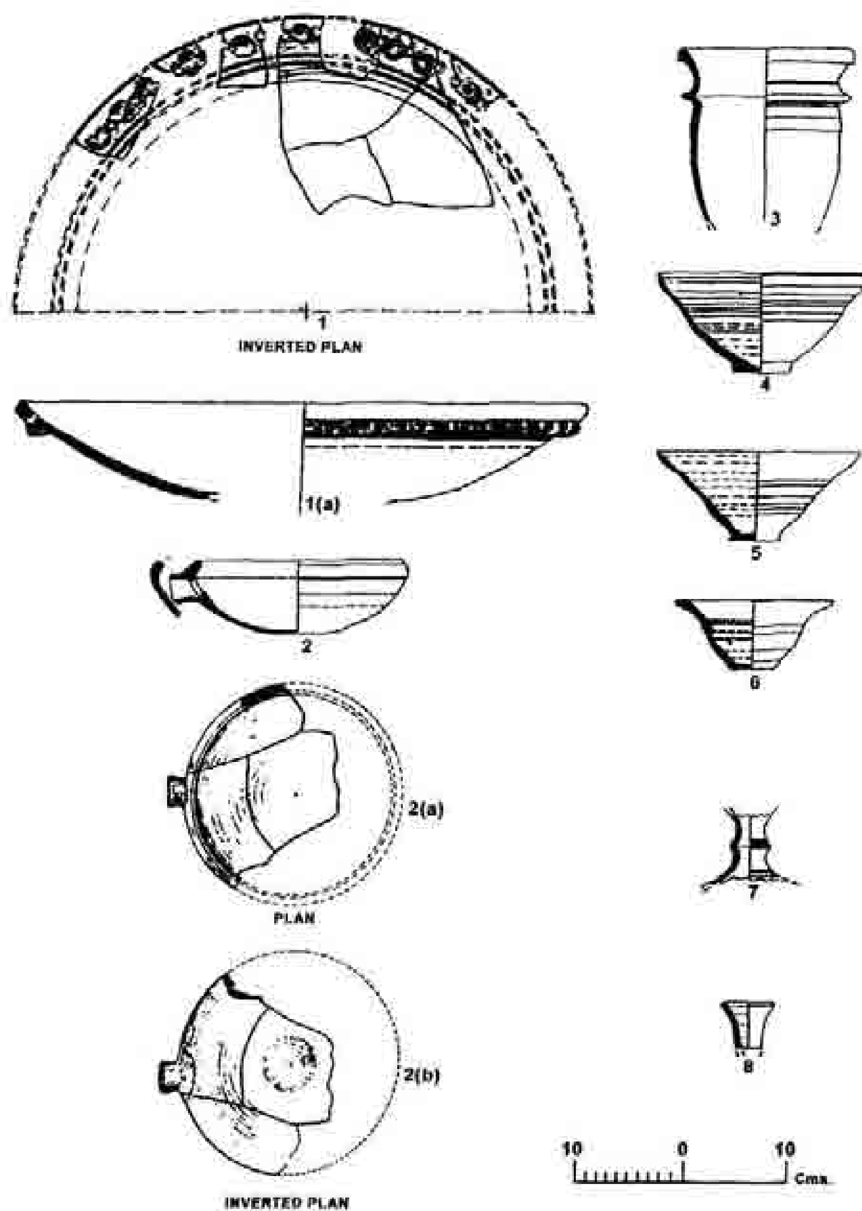
*Ambaran: 53, entrance of the monastery, Period III* and 54, *iron smith's workshop, Period III*

Fig. 13




*Ambaran : ceramic types, period - II*

Fig. 14




*Ambaran : ceramic types, period - III*

located in Square E 1, Quadrants 3 and 4 and square Fl, Quadrant 4 suggests the evidence of an iron smith's workshop in this period which was most probably attached to the monastic establishment (pl. 54).

The large complex, which is seemingly a monastery, partly survived during the Period IV when additions and alterations were made in its original structure and repairs were also carried out. Due to cultivation and unmindful diggings at the site the structures of this period, which were nearer to the surface suffered heavy damages and walls with only one or two courses of brick bats could be found. A square structure which is probably base of a brick pillar was seen in Qd 4 of Sq Al besides supporting walls and partitions in structures made during this period. The maximum deposit of the period was observed in Qdl of Sq A2 consisting of four layers with a distinct layer of brick-debris of some structure. A blurred coin possibly a Huna issue was found near the pillar in this level.

Pottery of Periods II to IV (figs. 13-14) does not have much difference in shapes, except that in the last period rims of bowls became sharp and straight which were thick and slightly incurved during the earlier two periods. Important shapes are basins, bowls, sprinklers, vases, lids, lamps, keep with hole in the base, handled cup, spouts including one with a grotesque animal head and storage-jars. Stamped designs have also been found on a few sherds. Amongst the pot lugs an interesting piece bears head of a lion.

Among important antiquities, a large number of decorative terracotta figurines mentioned earlier including one having the left profile of a princely looking male head, a broken terracotta mould showing the bust of a lady wearing a beaded hair ornament with a boss at the centre, ear pendants, necklace and armlets, two small terracotta grotesque heads, terracotta moulds of leaves and ornaments, terracotta skin rubber, beads and gamesmen, iron nails, hooks and rings, a few copper objects, a glass and a stone bead, part of a small stone sculpture in Gupta style showing a male attendant holding some object in his right raised hand and the left resting on his thigh and other minor antiquities have been found. An interesting broken terracotta tablet mould bears on its different faces negative impressions of a pendant, fruits and leaves, a bird sitting on a twig having fruit and leaf and a squatting figure of a monkey. Twelve circular copper coins were found during excavations of which two require cleaning, one is blurred, eight belong to the Kushan rulers Soter Megas, Kanishka and Huvishka and one to perhaps Toramana, the Huna ruler.

## KARNATAKA

### 20. EXCAVATION AT HAMPI, DISTRICT BELLARY

Under the direction of D. Jitendra Das, assisted by A.M.V. Subrahmaniyam and Megharaj Hadpad, of the Bangalore Circle, of the Survey, excavation was resumed at Hampi with a view to exposing the accessory structures in the area to the north-west of the queen's bath which formed part of queen's bath structural-complex.

Excavation in an area of 2500 sq mts has revealed two structures in north south orientation. The Structure-I (STR I) is rectangular and facing east measures 10.85 m x 5.45 m. It has two landings each rising to a height of 45 cm on the other. The eastern face of each landing has moulded courses *viz. pada, adhopadma, kanta* and *urdhvakumuda* and plastered in lime-mortar and

are extant to a height of 0.85 m. The floor of each landing is lime-plastered over a thick bed of lime-concrete mixed with river borne pebbles. There are steps at the northern end for each landing. The structure has a lime-plastered courtyard of 4.60 m x 6.00 m on the east. This courtyard is entered through a passage of 1.75 m wide on the south and the passage is flanked by basement on either side measuring 4.30 m x 5.40 m. The floor of the passage and the basements are lime-plastered. The southern entrance to the structure has screen wall on the south running in east-west orientation. The floor between the screen wall and the southern entrance is plastered with lime-mortar. There is also evidence of a stair case to the superstructure at the western end of the passage.

Structure II (STR II) rectangular on plan is located to the north of Structure I. It measures 10.20 m x 10.35 m and is extant to a height of 65 cm. This structure is divided into two halves by east-west running wall. The northern half is a simple chamber whereas the southern half has a chamber with toilet on the west with an outlet. The floor of this structure too is lime-plastered over a thick bed of lime-concrete.

Interestingly STR II has a covered passage on three sides with a width of 2.5m on the east and north and 60 cm on the south. On southern side it has an exit to STR I. The floor of the passage is also lime-plastered. The complex of the above two structures is enclosed by a cyclopean wall on the north and west.

Further excavation to the north of northern enclosure wall of the above complex brought to light a concealed terracotta pipe having 20 cm dia, covered with lime plaster to a length of 60 m in east-west orientation in a zig-zag fashion. Further work is essential to completely expose the above structural-complex and the water supply system.

The antiquities retrieved from excavation comprises iron pad lock of a door, iron nails, hooks, clamps and copper coins of Vijayanagara period. The ceramic typology retrieved from the site in grey and red ware revolve around day-to-day utilitarian spheroidal pot, jars, high-necked pots, lid, platters, bowls with featureless rim and shallow shoulder, carinated usually, narrow to wide-mouthed pots.

21. EXPLORATION IN DISTRICT BELLARY

The following villages in Hegaribommana-halli taluk of Bellary district were explored by A. V.M. Subramaniyam, of the Bangalore Circle, of the Survey, during the course of village-to-village survey for antiquarian remains.

| ***Locality*** | ***Nature of remains*** |
| --- | --- |
| Chimmanahali (14° 08'; 76° 08') | Hero-stone, inscription and loose sculpture of Hanuman of Vijayanagara period |
| Hanisi (14° 18'; 76° 57') | Temple of late Vijayanagara period dedicated to Ramesvara |

| *Locality* | *Nature of remains* |
|---|---|
| Honnahalli (14°09'; 76° 53') | Loose sculptures of Veerabhadra and Hanuman of Vijayanagara period |
| Hosakere (14° 18'; 76° 59') | *Sati*-stones |
| Kallahalli (14° 16'; 76° 56') | Medieval temples |
| Maduru (15° 16'; 76° 10') | Medieval *sod-stone* |
| Narayanapura (14° 19'; 76° 09') | Hero-stone and ancient mound of a temple of late medieval period |

22. EXCAVATION AT ISA.MPUR, DISTRICT GULBARGA

In continuation of the previous field investigations K. Paddayya of the Deccan College Post-graduate and Research Institute, Pune, undertook further fieldwork comprising surface mapping and excavation at the lower Palaeolithic site of Isampur (16° 30'N; 76° 29'E) in district Gulbarga. This year's work was aimed at further understanding the geoarchaeological context of the site and documenting the Acheulian cultural material found on the surface.

The Isampur site lies in a narrow valley in the northwestern part of the Hunsgi basin and is enclosed by shale and limestone uplands. Geoarchaeological studies conducted in the previous seasons *(1997-1998,* pp. 73-77; *1998-1999,* pp. 63-65; *1999-2000,* pp. 64-68) indicated that the site lay on the outer edge of a 2 to 3 m deep palaeochannel, which is of erosional origin and forms part of the valley floor. It was filled up with brown/black silts (2 to 3 m thick) in post-Acheulian times.

In this season, four geological cuttings were taken in the area to the north of the Stone Age locality with the aim of understanding the nature of sedimentation processes, responsible for the deposition of the brown/black silts in the adjacent area covered by the palaeodrainage tract. In recent while at a few other patches it was left almost untouched.

Two cuttings (Nos. 6 and 7) were excavated in the patches still preserving much of the sedimentary cover in its original context. Cutting 6 (measuring 5 x 3 m) lay 10m north of the main. Acheulian locality. It was excavated upto a depth of 1.4 m where natural soil (limestone bedrock)

was struck. The various sedimentary levels encountered in the cutting can be grouped into two units:

Unit 1 : 1.2 m thick deposit comprising four levels of compact, fissured black silt measuring from 12 to 35 cm in thickness and containing angular pieces of limestone (8 to 10 cm across) and chert nodules and artefacts; these silt levels are interstratified with five thin lenses (3 to 12 cm) made up of fine sandy/gravelly material comprising small *kankar* pellets representing lag deposits. The black silt levels of the upper portion produced small chert artefacts of Mesolithic character, while the lower levels yielded some limestone and chert artefacts of Middle Palaeolithic character.

Unit 2 : 10 to 20 cm thick layer representing Acheulian cultural horizon resting on eroded limestone surface and comprising limestone blocks and fresh Acheulian artefacts (comprising cores, regular types and debitages), all set in a compact matrix of *kankary* brown silt.

Cutting 7 measured 5 x 2 m and lay about 35 m north of the main Acheulian locality. Bed-rock (limestone) was struck at a depth of a 1.7 m. The following stratigraphy was exposed in this cutting:

Level 1 : (1 to 15 cm below surface): plough zone made up of a mixture *of kankary* brown silt and black silt.

Level 2 : (15 to 110 cm below surface), compact brown granular *kankary* silt containing a clay band (5 cm thick); randomly dispersed chert and quarzite artefacts of Middle Palaeolithic character, especially at 90 to 100 cm below surface.

Level 3 :(110-150 cm below surface), highly compact *kankary* brown clayey silt yielding Middle Palaeolithic artefacts of chert and quarzite.

Level 4 : (150 to 170 cm below surface), Acheulian cultural horizon overlying eroded limestone surface and yielding artefact of limestone as well as of quartzite and chert; matrix made up of extremely hard, whitish/brownish silt with a high proportion of carbonate.

The main observations emerging from the sedimentary / stratigraphical features and cultural material exposed by these cuttings are as under :

1. The formation of brown and black silts in the palaeochannel tract in post-Acheulian times was a prolonged process and involved many short episodes of sediment deposition in its erosion at the local level, leaving behind *sandy/kankary* gravel lenses.

2. The two cuttings have clearly established the stratigraphical contexts of the Middle Palaeolithic and Mesolithic (or late Upper Palaeolithic) cultural levels within the brown and black silt deposits respectively.

3. The occurrence of regular Acheulian cultural material on the eroded surface of limestone bed-rock in both cuttings clearly indicates the existence of several more Acheulian localities along the edge of and even within the area of the palaeochannel.

Cuttings 8 and 9 (each measuring 3 x 3 m) were laid further away (100 to 125 m) from the main Acheulian site. These were located in those portions of the quarried area where almost the

entire body of silt deposit was dug away by the Irrigation Department. In both the cuttings, immediately below 10 to 20 cm thick brownish silt (yielding a few flakes of chert and limestone), a rubble horizon (20 cm thick) of angular limestone blocks, basalt pieces, and chert and quartzite nodules, all set in a hard matrix of *kankary* brown silt, was encountered. This horizon was free from cultural material and overlay eroded limestone surface.

The second major aspect of this season's work concerned detailed mapping and study of surface features exposed on the main Acheulian site (Isampur-II).

Previous studies has led to the recognition of the existence of four sub-localities on the site, each covering an area of 500-700 $m^2$ and separated from each other by diffuse scatter of cultural material. These sub-localities consist of dense patches of cultural material comprising debitage, cores, complete tools and hammerstones In sub-localities 2 and 3, Trenches 1 and 3 were excavated in previous seasons and yielded cultural material *in situ* context under 25 to 50 cm thick sedimentary cover. Sub-locality 4 is located within the water channel and on account of the erosion of silt cover much of the cultural material is displaced.

This season's work covered sub-locality 1 which forms the southeastern part of the Isampur site and occupies an area of about 700 sq m. It forms part of farmland but a small portion of it is occupied by the water channel. Like other parts of the Isampur site, the overlying silt cover was quarried away by the Irrigation Department, leaving behind a thin soil deposit (10-20 cm). Subsequently, the owner of the farmland took some steps to use this stretch for raising crops. This involved certain amount of modification of surface features such as levelling, bund-making, digging of field channels and dislodging of large limestone blocks. However, because of the uneven nature of the surface and the exposure to surface of limestone blocks, the patch could not be used for crop raising purposes in any regular way. As a result, much of the area was transformed into a barren patch covered with grasses, shrubs and *Acacia* trees.

Quarrying of the silt cover by the Irrigation Department led to the exposure of a tremendous amount of cultural material ranging from large cores to hammerstones to finished tools and debitage including small sized chips and flakelets. In the previous field seasons two trenches (Trenches 4 and 5, measuring 4 x 3 m and 5 x 4 m respectively) were excavated in this sub-locality; these revealed rich and intact Acheulian cultural material similar to that encountered in Trenches 1 and 3. This field season was devoted to a systematic documentation of the various features of the sub-locality exposed to surface. This work included:

1) Gridding of the entire area into 5 x 5 m units to facilitate detailed recording of the natural and cultural features;

2) Careful scrutiny of surface features such as patches covered by stone blocks, vegetation and soil cover;

3) Exposing of artefacts and §tone blocks which were already partially brought to the surface due to various land modification activities by using knife and brush;

4) A general study of the nature and

distribution pattern of cultural material ranging from large cores to small chips and the context of preservation including spatial displacement and examination of the physical attributes of the artefacts; and

5) Plotting of all artefacts and stone blocks exposed to surface in various portions of the locality due to digging of field channels, preparation of field bunds, displacement / quarrying of large stone blocks, erosion by water channel and other land modification activities.

The main conclusion arising from these detailed field studies is that the cultural record at this sub-locality is well preserved and is very suitable for behavioral interpretations. While it must be conceded that its level of integrity is not as high as that of the material found in sealed contexts in Trenches 1,4,5 and that the individual objects have lost the attribute of point provenance in many cases, still it was very clear that both cultural material and stone blocks did not suffer large-scale disturbance due to recent land modification activities. Spatial displacements of artefacts ranging from a few centimetres to a couple of meters, smoothening of artefact surfaces, breakage due to trampling, fire and ploughing, and use of stone blocks for bunding were noticed during the field study. But what is to be emphasized is that though the attribute of point provenance might have been lost in case of some of the artefacts identification of activity areas like chipping clusters as revealed in Trench 1 would be difficult. The cultural record is however, still well preserved in terms of spot provenance. The stone tool assemblage recorded on the surface of this sub-locality proved to be very useful for understanding several aspects of the Acheulian culture including tool typology and reconstruction of tool reduction sequences.

A detailed attribute analysis of over 250 artefacts forming the surface assemblage of this sub-locality was undertaken in the field itself. The artefacts were classified on the basis of morphological features and metrical attributes such as length, breadth, thickness and weight. Other features like raw material, flaking angle, planform, cross-section, number of flake scars, platform characteristics and cortex percentage were also recorded. The study brought to light a large variety of shaped tools, cores and flakes. A total of sixty four shaped tools were recorded of which twenty one were made on flakes, three on cobbles and the remaining ones on slabs of limestone. The shaped tools included handaxes (45), chopping tools (8), cleavers (7), scrapers (2), and knife (1). Twelve hammerstones of chert, limestone, basalt and quartzite were also recorded. The surface mapping also brought to light three large discoidal limestone blocks which had steep flaking around the circumference and were thus classified as anvils.

Fifty-two cores on limestone blocks were documented, while two were on limestone flakes and another two on chert cobbles. Most of the limestone blocks selected for removal of flakes ranged in thickness from 8 cm to 17.5 cm. Besides shaped tools, cores, hammerstones and anvils, one hundred and twenty-seven flakes were recorded in the surface assemblage. While many of the flakes were clearly blanks detached for manufacture of artefacts, there were several flakes which appear to have been used directly for cutting/chopping purposes. Secondly, the detailed study of the flakes exposed to surface facilitated

the identification of variability in their forms and types. This study clearly showed that most of the flakes were removed by the hominids with prior planning so that they could be transformed into regular tool types.

23. EXCAVATION AT KANAGANAHALLI (SANNATI), DISTRICT GULBARGA

In continuation of the earlier work *(1997-98,* pp. 93-96), the Dharwad Circle, of the Survey, under the direction of K. Veerabhadra Rao, assisted by K.V. Rao, M.V. Visweswara, A.V. Naganoor, M. Kalimuthu, S. Lingaraju, R.S. Athani and B.N. Byadagi undertook excavation in the peripheral zone of the stupa site with the objectives of exposing the probable connected structural units of the stupa-vihara complex, the possible inter- relationship amongst them and the different structural phases along with the constructional details. The work laid bare much ruined remnants of a number of a brick-built accessory structural units, paved and sheltered passages connecting them and a part of a possible monastic complex to the north-west of the main stupa. A number of Brahmi label inscriptions, coins and ceramic repertoire characteristic of the period are also retrieved.

In all, 22 trenches (10x10m) were laid around the *maha-stupa* and dug to an average depth of 1.20m, where the black cotton natural soil was encountered. Excavation on the eastern side brought to light, remains of two squarish brick structures measuring about 6 m square in highly disturbed condition with extant three courses of bricks (pls. 55-56). These structures are symmetrically positioned on either side at a distance of about 10m, from the eastern *ayaka-vedika* and probably were the platforms meant for the constructions of votive stupa.

During the excavation of trenches on the southern side of the stupa, it was found that the limestone stumps jutting out from the surface in an alignment, were actually the remains of the pillars (pl. 57) At the working level of these pillars, it was noticed that there were brick pillar bases positioned at equal intervals in an east-west alignment. The area in-between the pillars was found well rammed with brickbats, early historic pottery, used tiles etc. the western end, this feature takes a right-angle turn and continues to a distance of nearly 35 m. This appears to be a covered passage probably connecting the monastic complex located at the north-west and the southern entrance of the *maha-stupa.*

Excavation in the north and northwestern side of the stupa revealed a much-disturbed rectangular brick structure extant upto two courses. On the northern side of this structure, traces of walls extending further towards north are traced to a distance of two meters. This structure appears to be the remains of the monastic-complex with a rectangular entrance porch on the south, and rectangular or square rooms (pl. 58). Further work in this area would reveal the extant plan and utility of this structure.

As part of the excavation, comparatively better preserved northern *ayaka-vedika* was probed by way of gradual and careful removal of the brick layers with the- objective of tracing the possible reliquary and understanding the constructional methodology followed in the *akaya-vedika.* This *ayaka* platform measuring 3.45m x 1.60m x 1.40m was veneered with carved drum slabs. One of these

Plates 55-56



55



56

*Kanaganahalli: 56, general view of stupa* and 56, *brick structure on the eastern side of the stupa*

**Plates 57-58**



57



58

*Kanaganahalli*: 57, *stupa, pillar bases* and 58, *remains of the vihara-complex*

slabs is damaged exposing the inner brick core. More than fourteen courses of burnt-brick wall set in mud-mortar was raised above the *pradakshina-patha* level, externally abutting the drum wall built of chiselled limestone slabs. The brick (7 x 20 x 41 cm), roughly corresponding to the standard Satavahana bricks of 1:3:6 proportion. Wall was lime-plastered and the slabs were veneered externally. These drum slabs are held in position by the carved cornices bordering the top of the *ayaka-vedikas.*

While probing the northern *ayaka-vedika,* it was further observed that, below the brick wall, at a depth of about 30 cm, parts of an inscribed *Buddha-pada* slab and another mutilated veneering slab were found. This evidence suggests that the extension of the brick-built drum, *ayaka-vedikas* and veneering them with carved/ decorated limestone drum-slabs were attempted probably in the second phase of the constructional / embellishment of the stupa. Even at a depth of 50 cm below *the, pradakshina-patha* regular brick courses continue. Further probing *of ayaka-vedika* could not be taken up due to onset of monsoon.

For facilitating more working space near the stupa to assemble and arrange the mutilated parts of the drum-slabs and dome-slabs, the one meter baulk around the stupa was removed. During the . process, a fragment of the sculpture of a lion carved of reddish sandstone in round, in seated posture probably forming part of the capital of a free standing pillar, part of an ornate *Buddha-pada* and other carved fragments forming part of dome and drum slabs were retrieved (pl.59).

The excavation brought to light, three fragmentary donative inscriptions in Brahmi script in the characters of first-second century AD in Prakrit language (pl. 60). One of them engraved on the octagonal part of an umbrella-shaft *(chhattra-danda)* in two lines read-

Ll. *(a) machiya velinika(ya)*

L2. *deya dharma chhata* [1 *]

It records the pious gift of a *chhattra* (umbrella) by Velinika, wife of a minister *(amachi).* The second, single line record engraved on the front side of a fragmentary *Buddha-pada* slab found below the brick wall of the northern *ayaka-vedika* reads .. *net bodhi parigrahakasa vaniyasa Budhilasa payasa pato deya dhamma* [1*], probably meaning the pious gift of a *payasa-pata* (the slab bearing the feet impression of the Master) by Budhila a merchant and a *bodhi parigahaka* (attainer of true knowledge). The third much fragmentary record engraved on the octagonal part of a *chattra-danda* refers the *maha-stupa* as *(adhalika maha-chaitya).*

The other significant finds from the excavation include twelve lead coins and a fragmentary sculpture of a female figure. The small lead coins have on their reverse, faint Ujjain symbol and on the obverse bear much eroded legends. The fragmentary female image in round (36.5 cm in height, 22 cm in width and 12 cm thick), available only upto the waist, was found to the east of the stupa at a depth of 65 cm. The left hand is kept on the waist holding the loose ends of the upper garment. It is in tune with the typical Satavahana style of first-second AD, in having slender waist, fleshy thighs and ornamentation. She wears a diaphanous cloth, which is held at the waist by a beaded girdle. The drapery flows on either side with wavy folds carried on to the back side of the sculpture. The image probably is of a *yakshi* or a *Salabhanjika.*

Plates 59-60



59



60

*Kanaganahalli:* 59, *fragmentary lion capital* and 60, *fragmentary inscription*

As the complex is primarily of religious nature, the ceramic industry of the period is not well represented, however, the trenches laid on the southern side of the stupa yielded a small quantity of pottery comprising polished red ware, red slipped ware, ordinary black ware and chocolate brown ware akin to the early historic shapes from other well known sites of Karnataka - Andhra region. The polished red ware, available in larger quantity, is represented by wide mouthed storage-jars, thick shallow vessels with beaded and collared rims with conical bottom, globular water vessels of medium size and small carinated pots. The ordinary red ware largely has flat-based bowl with tapering profile of a variety of size and corresponding platter-like lids. One of the black ware Sherds has an engraving ''*Hogalikasd*[1] in Brahmi characters of first-second century AD.

24. EXPLORATION IN DISTRICT MANDYA

Uday Anand Shastry, of the Bangalore Circle, of the Survey, conducted village-to-village survey for antiquarian remains in K.R. Pete and Pandavapura taluks and discovered the antiquarian remains from the following villages.

| ***Locality*** | ***Nature of remains*** |
|---|---|
| *K.R. Pete* | |
| Anchemuddanahali (12° 34'; 76° 33') | Two hero-stones of medieval period |
| Aichanahalli (12° 34'; 76° 33') | Upper Palaeolithic stone tools and late medieval hero-stones |
| Bellekere (12° 35'; 76° 35') | Medieval and late medieval hero-stones |
| Chattanagere (12°36´;76°35´) | *Sapta-matrika* sculpture of late Hoysala period |
| | Late medieval hero-stones |
| Hadanur (12° 36'; 76° 33') | Hero-stones of late medieval period |
| Hunasenahalli (12º35´;76º35´) | Late medieval temple with stucco work |
| Malkonahalli (12° 34'; 76° 35') | Siva temple, hero-stone and *sati-stone* of Hoysala period |
| Ramanahalli'; (12°37´;76° 33') | |

| *Locality* | *Nature of remains* |
|---|---|
| Tendekere (12° 36'; 76° 33') | Stepped-tank with stucco decoration of medieval period |
| ***Pandavapura*** | |
| Antanahalli (12°28´;76º33´) | Lower Palaeolithic stone tools |
| Bindahalli (12° 29'; 76° 33') | Lower Palaeolithic stone tools |
| Chikkade (12° 30'; 76° 43') | Medieval hero-stones |
| Chikkamarali (12° 31'; 76° 43') | Medieval temples of Virabadra and hero-stones |
| Kanaganamaradi (12° 31'; 76° 44') | Late medieval hero-stones and *sad-stones* |
| Kannambadi (12° 26'; 76° 35') | Loose sculpture of Venugopala, *Seshasayi* Vishnu and Venugopala swamy temple of Hoysala period |
| Kattei (12° 26'; 76° 33') | Medieval hero-stones |
| Kennalu (12° 28'; 76° 41') | Medieval hero-stones |
| Malligere (12° 29'; 76° 32') | Mutilated sculptures *of chamaradhara,* Kubera, Dharanendra Yaksha and Padmavati of Hoysala workmanship |
| Nuggehalli (12°32´;76º43´) | Late medieval hero-stones |

| *Locality* | ***Nature of remains*** |
|---|---|
| Parrasomanahalli (12° 30'; 76° 43') | Medieval and late medieval hero and so/A-stones |
| Talasasana (12° 30'; 76° 44') | Inscribed hero-stone |
| Vadesamudra (12° 33'; 76° 45') | Medieval and late medieval hero-stones |

## KERALA

### 25. Excavation at Bekal Fort, Pallikare, District Kasargod

In continuation of the previous year's work *(1999-2000,* p.77), the Thrissur Circle, of the Survey, under the direction of T. Satyamurthy, assisted by Krishna, T. Samual Joshuva, S. Ravichandran, A. Anilkumar, Jinukoshy, and Glaston, resumed excavations in the northern side of the Sector II, at Bekal fort. During the last season Sector IB, north of Sector IA, was taken up for investigation which brought to light a three-tiered rectangular structure with a well and a kiln on the northern side of the structure.

A temple structure constructed in laterite blocks was exposed. It is a massive structure (15.75m x 9.60m) located in front of watch tower (pl.61). The entrance to the temple from the eastern side with the *garbha-griha* (4.20m x 9.60m) on the west. The existing nine courses of laterite blocks of the *garbha-griha* indicate the massiveness of the superstructure (pi.62). In front of the *garbha-griha* is a *pillared-mandapa* (10m x 6m) and then a passage measuring 1.40m. Beyond this passage is a *nandi-mandapa* (1.65mxl .35m) with a water chute *(pranala)* which served to drain out the water from the *nandi-mandapa* towards the north-west. According to a local legend the Vishnu-*pada* (foot print of Vishnu) found over this mound was removed and installed near the Hanuman Temple located at the entrance of the fort. In the north-west corner of the temple-complex is a hall which may be the kitchen of the temple.

BKL-III is situated on the eastern side of the fortification. The excavation in this sector yielded the remains of a residential structure measuring 25x15m, built on laterite bed-rock with entrance to the east. The residential block has a courtyard in the middle with rooms and toilet facilities.

More than five hundred antiquities were unearthed during the excavation, the majority of which are copper coins of Hyder Ali, Tipu Sultan and Gandaberunda coins of Mysore Wodeyers. More than hundred copper ingots were collected during the excavation. Another interesting discovery is that of three terracotta seals of Vijayanagara dynasty (pl.63). Other antiquities like brass-dice, terracotta beads, some gold pieces, gold earring (pi.64). cannon balls of different sizes, cannon pieces were also unearthed during the excavations.

**Plates 61-62**



61



62

*Bekal Fort, Pallikare: 61-62, structural remains*

Plates 63-64



63



64

*Bekal Fort, Pallikare:* 63, *terracotta seals of the Vijayanagara period* and 64, *gold ornaments*

**Plates 65-66**



65



66

*Munikallu:* 65, *topikal* and 66, *Thalolapoyi: cist-burial*

Plates 67-68



67



68

*Thalolapoyi:* 67, *rock-cut cave* and 68, *Ekalbara: general view of ancient mound from riverside*

26. EXPLORATION IN TEJASVINI AND PAYASVINI RIVER VALLEYS, DISTRICT KASARGOD

During the season, the Thrissur Circle, of the Survey, carried out explorations in Nileswaram, Hosdurga taluk in District Kasargod and several new sites were discovered which are as under:-

| *locality/Site* | *Nature of remains* |
|---|---|
| Karinthalam (Umichipoyli) Kinanoor Karinthalam Panchyat | **Six rock-cut caves** |
| Munikallu, Periyattadukam, Pallikare Panchayat | Two **Kodaikkals and two Topikals** (pl. 65) |
| Narimalam (Chayyut) Kinanoor Karinthalam Panchayat | One natural cave |
| Thalolapoyi - West-Elari-Panchayat | Three cist burials (pl. 66) **and** one rock-cut cave (pl. 67) |

So far kodaikkal and topikkal type of burials were found only in central Kerala region and the northernmost limit was only upto Thrissur. For the first time such type was noticed in northern Kerala region, in District Kasargod.




27. EXCAVATION AT EKALBARA, DISTRICT DHAR

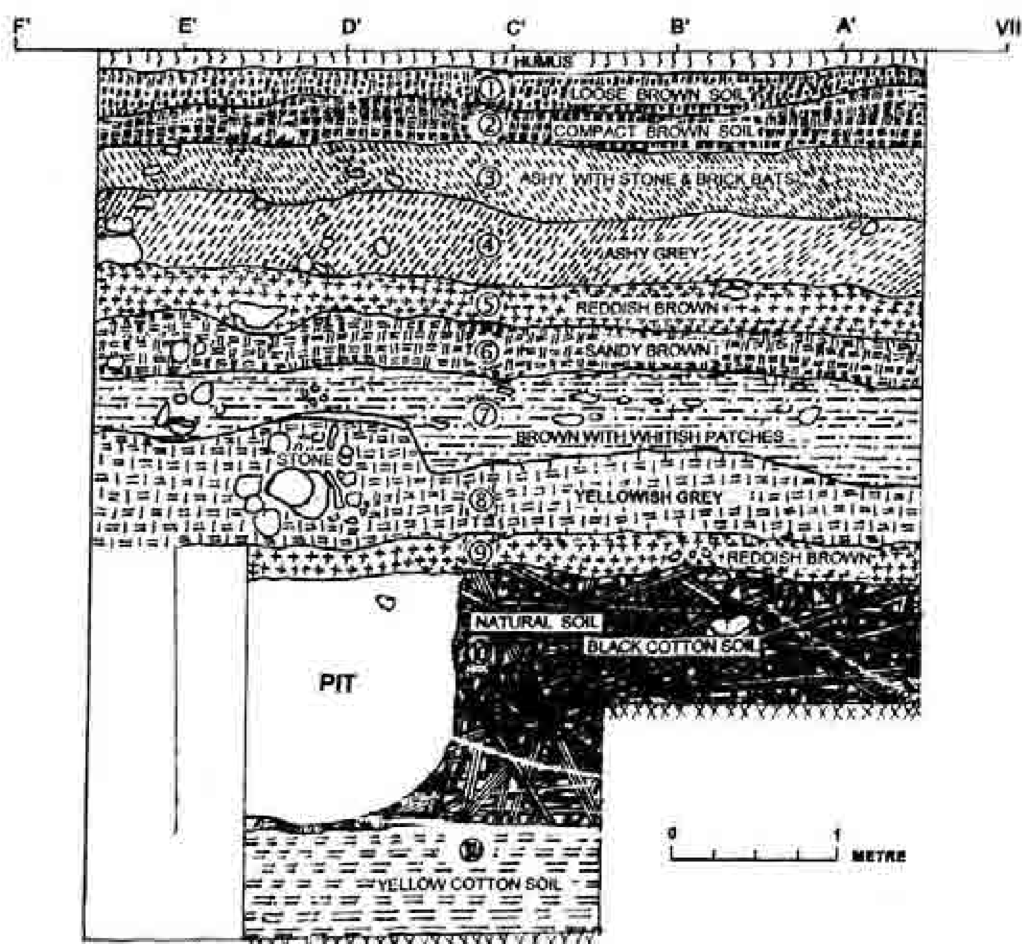
The Directorate of Archaeology, Archives and Museums, Bhopal, Madhya Pradesh, conducted excavation at Ekalbara (Tehsil-Manawar) a Chalcolithic site, under the direction of D.K. Mathur, assisted by P. Mathur, Pastaria, P.K. Sharma, Nagendra Verma, Govind Verma, Kamta Nirmal and Prem Shanker. This ancient mound locally known as Junakheda spread in about 100 x 100 m area, fortified by the ruined stone wall with only the remains of its foundation. Over the mound a medieval temple of Siva, locally called Bagheswar-Maharaja, a sculpture of Ganesa, Siva, Nandi and cow and calf, placed in the temple, belong to Parmara period (pl. 68). Another large *Siva-linga* as well as Nandi was found scattered in the mound. It is situated (22° 6'30"; 75° 0' 22") on the right bank of River Narmada, 22 km from Tehsil headquarter-Manawar in the southern direction, 50 km from the district headquarter Dhar. Three Trenches EKB-I, EKB-II & EKB-III were laid, with digging carried down to the natural soil at a depth of 4 m, 4 m and 5.20 m respectively (fig. 15). Important antiquities from the excavation are miniature vessel and bowl of Chalcolithic period (pl. 69), sherds of black-and-red ware, microliths (pl. 70), core, stone ball and bead, terracotta-disc, ear-lobes, shell-bangle as well as animal teeth. In Period-II (Mauryan), mother goddess in ivory (pl. 71) terracotta figurines of bull, disc, wheel, bead, stone quern, disc, ear-lobes and bead, iron implements like clamps, along with a few sherds of NBPW were also reported. In Period-III, a thin bead of gold, incised pottery along with iron-nail, a few fragmentary bangles of shell and glass were found.

**Fig. 16**

## EKALBARA EXCAVATION - 2001

**TRENCH NO. EKB - 1**

**SECTION FACING EAST**



Plates 69-70




69




70

*Eaklbara: 69, ceramic types, chalcolithic period* and 70, *stone blades*

Plates 71-72



71




72

*Eaklbara:* 71, *eye goddess, Period I* and 72, *terracotta beads*

In Period-IV precious stone bead, disc and pendant, variety of terracotta animals like bull, parrot along with iron spatula, arrow-head, etc. were recovered. In Period-V a peculiar earthen pot, locally known as Rajan, sherds of medieval ware along with terracotta bead (pl. 72), miniature pots, lamp, stopper, bull, implements of iron, spatula and knife, golden bead, copper strip, shell bangle were collected. In the last period (Muslim / Maratha) were found in addition to structures, terracotta candle stand, *chillum,* bead, cowries and Mughal coins.

28. EXCAVATION AT KALYANPURA, DISTRICT DHAR

The Directorate of Archaeology, Archives and Museums, Government of Madhya Pradesh, conducted an archaeological Excavation at Kalyanpura in District Dhar under Om Prakash Misra and M.K. Maheshwari, assisted by B.K. Lokhande, Ahamad Ali, Jakir Hussain and L.P. Kadam etc.

The site Kalyanpura is situated at a distance of 4 km from Bankaner on Manawar-Dhamnad road and 2 km from Thangaon to Amlatha. The excavated site is just in-between two tributaries of River Narmada namely, Man and Mandawati rivers. The site falls within the area under the submergence of Sardar Sarovar Dam Irrigation Project.

As the results from other sites of Narmada chalcolithic habitational sites were fruitful, further excavation was conducted to collect details of the cultural deposits of the site.

The mound roughly measures 190 m x 165 m with a total deposit of 3 m divisible into four periods as under:

Ia. Pre-Mauryan Ib.

Ib. Mauryan

II. Sunga

III. Satavahana

IV. Gupta

Five trenches were laid on the four corners of various localities *viz.,* KLP I, KLP III, KLP IV and KLP V and KLP II was just on the peripheral area of the mound. The above sequence was found in KLP I, KLP III and V.

The habitation started from pre-Mauryan times and continued upto the medieval period. Important antiquities recovered from the site comprise sherds of NBPW, incense bottle, beads of semiprecious stones, crucible for melting copper or iron, iron slags, terracotta beads and balls, skin rubber, conch piece and shell bangles, antimony rod, etc.

There is evidence of house, floor, hearth with kitchen material in addition to the beads of semiprecious stones, terracotta balls, shell bangles and sherds of NBPW. Habitational floors were traced in KLP I, KLP III and KLP V in Maurya, Sunga, Satavahana and Gupta levels. Floors ranging from 5-6 cm to 9-10 cm in thickness are of compact soil mixed with cowdung showing a whitish colour.

Burnt materials were exposed in KLP V, and KLP IV in layer (4). Habitational deposits with mud wall and storage-jars etc were found in KLP

I, KLP III and KLP V. Among the noteworthy finds in KLP V was a ring-well comprising forty courses from the Gupta level.

Apart form the archaeological excavation, huge conch pieces with bangles from the mound were collected indicating the site being a factory site for bangles. One complete crucible for smelting copper was also reported from the surface along with some pieces, but no hearth was traced.

29. EXPLORATION IN DISTRICT DHAR

The Directorate of Archaeology, Archives and Museums, under O.P. Misra, M.K. Maheswari, B.K. Lokhande conducted explorations in Man and Mandawati river valley including the tributaries of River Narmada. During the explorations, Stone-Age tools were collected on the banks of the tributaries. Palaeolithic tools were also recovered from the exposed sections of the River Mandawati.

O.P. Misra and G.L. Badam of the Deccan College Post-graduate and Research Institute, Pune, located a fossil of an animal tooth in the context of the Palaeolithic tool bearing deposit.

30. EXCAVATION AT SANCHI, DISTRICT RAISEN

The Bhopal Circle, of the Survey, under the guidance of P.K. Mishra, assisted by Rajani Mishra and Shambhunath Rajbhar, carried out a small scale excavation on the northeastern corner of the Archaeological Museum at Sanchi. The objective of this excavation was to find out the nature and type of temple remains at the site. The excavation revealed remains of stone temple plinth, fragmentary sculptural and architectural remains. This north-facing temple consists of *mukha-mandapa, mandapa* and *garbha-griha.*

31. EXCAVATION AT DEOR KOTHAR, DISTRICT REWA

In continuation of the previous year's work *(1999-2000,* pp. 100-102), P.K. Mishra, assisted by Narayan Vyas, O.D. Shukla, Manuel Joseph, Shambhunath Rajbhar, O.B. Khobragade, K.K. Rai, Nitin Srivastava, C.K. Bhanarkar, Ramesh Thakur, Surendra Bisht and Awadhesh Sinha, of the Bhopal Circle, of the Survey, resumed excavation on the west and south of Stupa 1 with a view to expose the stupa.

The excavation revealed remains of staircases leading to the *pradakshina-patha of medhi* to the west of stupa, a monastic-complex of brick was partially exposed. Flag-stone flooring was also exposed with evidence of pieces of inscribed pillar probably of Mauryan period. Among the antiquities recovered from the excavations include copper coins, iron nails, iron slag, beads, terracotta animal figurines and a number of pieces of *chhattra* with Mauryan polish. Apart from these several rock-shelters were also noticed with painted inscription in Sunga Brahmi character of the second century BC.

32. EXPLORATION IN DISTRICT SIDHI

O.P. Misra, of the Directorate of Archaeology, Archives and Museums, Bhopal, Madhya Pradesh, explored the ancient sites, medieval temples and sculptures from Churhat tehsil, during the village-to-village survey. A Mauryan site was reported at Gurihawa, on the bank of Son river. Antiquarian remains from the surface comprise beads, sherds of NBPW, bangles, brick structures and semiprecious stone beads. Besides some rock paintings were also reported from the nearby rock-shelters.

## MAHARASHTRA

33. EXCAVATION AT KAUNDANIYAPUR, DISTRICT AMRAVATI

The Deccan College Post-graduate and Research Institute, Pune, under the direction of Sheila Mishra and B.C. Deotare, assisted by Gurudas Shete and Sonali Naik, carried out small-scale excavation at Kaundaniyapur with a view to understanding the cultural sequence of the site. A small step trench in the KDN-II area was taken up and sampled slightly more than 4 m of habitational deposit. Major finding was about 70 cm thick sediment in which almost no cultural material occurred. The pottery types above and below this layer however, do not differ in type, so this gap does not represent a gap in time, but rather an episode of alluvium being deposited within the habitation. This may be confirmed by sedimentological and chemical studies of the sequence. Throughout the sequence black-and-red ware, red-slipped ware and micaceous red ware are the three major ceramic types. Only the lowermost level yielded black-and-red ware of megalithic type. Most of the Kaundaniyapur sequence therefore, post dates the Megalithic phase. On the other hand later varieties of early historic pottery are also absent.

All the excavated habitation was sieved and floated for recovery of botanical remains. The initial recovery of botanical remains indicate the dominance of rice *(Oriza sp.)* grains as well as rice husk throughout the strata with minor variations in-between layers. Other charred grains such as various types of pulses and cereals were also recovered, relatively small in size. Majority of the layers yielded plant remains. All faunal material was also collected for study. Detailed stratigraphy was recorded and soil samples collected for sedimentological and chemical studies.

Exploration around the site shows two major post-occupation alluvial fills. On the side of the site adjoining the Wardha river there is a terrace from which late medieval bricks and tiles were found. By the side of the site, away from the river, an alluvial fill with pottery found. This type of pottery was not available in the sequence of habitation. This fill therefore, belongs to a period after the excavated sequence, when the habitation shifted, probably to the present day Kaundaniyapur village, upstream of the extant mounds. This alluvium shows that the Wardha river at that time flowed on the other side of the site. Most probably when it shifted to its present position a large part of the site was destroyed.

34. EXCAVATION AT AJANTA, DISTRICT AURANGABAD

S.V. Venkateshaiah, of the Aurangabad Circle, of the Survey, assisted by M. Mahadevaiah, R. Krishnaiah, J.V.P. Rao, M. Kasturi Bai, Hemsagar Naik, H.R. Desai, D.L. Sirdeshpande, G.L. Gaikwad, S.B. Rinde, Vijai.R.Satbhai, and P.G. Deshmukh, during the course of excavation, discovered some brick alignments overlooking the caves on the right bank of River Waghora. During the exploration the team found some ancient bricks along the present pathways and the platforms raised by the Forest Department. These ancient bricks inspired the team to take up a test pit initially to ascertain the nature of structural remains. The test pit yielded an intact brick wall running in east-west direction which further lead to the scientific debris clearance.

The main objective of the clearance was to find out structural remains besides rock-cut caves to know about the artisans involved in excavation of caves and the preparation of paints and structural establishments for monastic settlement.

The area on the right bank of the River Waghora overlooking Caves 4 and 17 was selected with six trenches measuring l0mxl0m in north-south direction, each trench sub-divided into four quadrants measuring 5mx5m each, including baulk.

The site preserved a very clear stratified deposit at the flanks of the hill. Huge deposits of scree of black clay mixed with boulders, which rolled down the slope, were overlaid on the disuse phase deposit, consisting of large quantities of bricks and brickbats, laid in sandy silt matrix. These bricks, resultant of collapsed walls, were slided down and overlaid on the floor level of the structures. The bottommost layer exposed on the site is hard, compact, grey, weathered trap rock mass.

A brick-built monastery (vihara) in 'U' shape (pl. 73) consists of row of cells on three sides (south, west and north) with perhaps a common entrance towards the River Waghora on the eastern side. The southern wing consists of a row of five cells, the northern wing consists of three cells, while the western wing has a single centrally located cell with a front passage. There are two more 1.30m wide passages all along the entire length of the northern and the southern wings connecting the central cell. The entrance of the cells open into these passages. Opposite to the central cell at a distance of 2.20m east, a rectangular brick platform meant for a stupa was located. This forms the centre of the monastery. The back wall of the monastery on south, west and north differ from each other in mouldings on elevation except the thickness of the wall which measures 0.88m. In general the back walls of the monastery are lime-plastered from top to bottom. There are different sizes of bricks used which include 47.5 to 49x23 to 24x7 to 8.5cm, 41.5x24x7.5cm and 38 x (-) x 8cm.

**Section facing east**

Layer 1 Less compact black silty clay (thin film of silt separates layer 1 and 2).

Layer 2 Compact pinkish black clayey silt with specks of brick fragments and trap stone chips

Layer 2a Compact black silty clay with specks of lime mortar chips

Layer 2b Less compact pale pinkish clayey silt

Layer 3 Hard compact black silty clay

Layer 4 Less compact pale brown sandy silt mixed with brickbats and bricks (disuse phase *of* structures)

Layer 5 Loose grey ashy silt (floor level)

Layer 6 Loose brownish grey clayey sandy silt (floor level)

Layer 7 Less compact grey sandy silt (floor level)

Layer 8 Compact hard, dark grey sandy silt

Plate 73



*Ajanta: Buddhist monastery, after debris clearance*

The southern wing of the monastery consists of two parallel thick walls running in east-west direction to a length of 14.72m with 2.60m apart and connected by 0.48m transverse walls and forming a row of five cells. The width of the back wall measures 0.88m while the front wall measures 0.78m and the entrances for cells are situated on the north. Of these cells, the central cell is larger in size measuring 3.52x2.60m. Two cells on either side have a dimension of 2.60x2.60m each. The central cell was a shrine with a brick pedestal, abutting the back wall with a square slot cut into it, perhaps meant for an idol (phase I). Later on this pedestal was enlarged into a raised rectangular brick platform extending to the full width of the cell encasing the earlier idol and the pedestal. This platform is 3.52m long and 1.24m wide with simple *adhishthana* moulding (phase II). The floor level was also raised correspondingly. The rammed-floors are laid with river pebble packing. The entrances are 73-74 cm width and had doorsills cut into the brick perhaps to accommodate wooden doors. The cells have two phases of activity as seen in the raising of floor levels. The passage in front is a rammed floor with pebble packing. The back wall of the southern wing contains the *padma* moulding on *adhishthana* portion above which the wall proper rises.

The western wing is connected to the south western end of the southern wing and runs in north-south direction to a length of 15.30m then turned towards east. There is a single cell at the centre leaving a passage on either side. On either end of this wing was noticed corner cell of southern and northern wings. The wall of the central cell measure 74cm and was stitched with the back wall on the west. The cell measures 2.60m (North-South) x 2.80m (East-West). This cell preserved to a maximum height of 1.48m with an entrance and doorsill on its east. The floor make up is similar to the southern wing cells. Its central location in the monastery is perhaps because of its use by the chief of the monastery. A passage exists in front as mentioned above and lies opposite to the stupa of the monastery. The back wall of this wing is very significant for its moulded *adhishthana* overlain by a row of projections and recesses and further overlain by pilasters at intervals at higher level on the wall portion. This wall was preserved to a height of 2.56m. The recesses on the wall with remnants of lime indicate some panels which might have been fixed as a decoration to the wall. The wall has *upana, urdhvapadma, adhishthana* mouldings, deeply recessed *kantha, pattika* and *kapota.*

Northern wing consisted of three cells, comparatively big in size. Further east of this wing is yet to be excavated. The extant length of this wing is 10.24 m with a height of 1.25m and the thickness of 0.88m. The size of the transverse partition walls are same as that of the southern wing measuring 48cm. Among the three cells of this wing, the north-west cell measures 2.8m in length (E-W) and 2.65m in width (N-S). The middle or the second cell measures 2.62m (E-W) x 2.64m (N-S). The third and the eastern side cell measures 2.56m (E-W) x 2.58m (N-S). Most of the bricks robbed off in this wing, were preserved in the foundation courses and at some places upto the floor levels. To the north of this wing, at north-west corner, some brick structure of earlier phase was encountered. The structure of the earlier phase is partly exposed and the northern wall of the northern wing is stitched with this structure. Robbing in disuse phase disturbed the entrances of these cells. However, traces of the

entrances can be located at the centre of the cells. A test pit was also taken up to ascertain the constructional details of the back wall which was found to be simple with some off sets at lower levels. However, from the *adhishthana* to the top portions of the wall is missing.

A rectangular brick platform occupies the central portion of the monastery. The platform consisted of rectangular brick wall measuring 4.95 m (E-W) x 3.71 m (N-S) and a width of 0.98m with core make up in the centre. The only three courses of the brick wall exists. The top course is laid in stretches of two bricks on all sides. The middle portion of the wall was demarcated by chiselling to a width of 48cm where the wall of the stupa might have been raised. The bricks used in the platform measure 47.5/48 x 23 x 7 cm. The inner part of the platform was already disturbed by making a cut feature which was filled with many bricks, stones and brickbats. However, a part of the core make up was preserved revealing pebble rubble packing on the top overlain by dark brown compact clayey silt, which in turn had rubble under packing. The packing was underlain by yellowish weathered rock waste, which was overlying on a blackish weathered rock with chunks. This deposit was underlain by compact grey clayey silt with brick fragments. This was resting on a compact blackish grey clayey silt deposit, which is hard to dig. The deposits are still continuing. Some of the bricks of the foundation courses especially on south - east corner slided *in situ* due to inward thrust and found inside the platform. Within the demarcation lines on the foundation course of the platform, another platform *(vedika)* was perhaps raised to accommodate most probably the stupa for worship of the inmates. Its central location amidst cells and monastery with circumambulation passage and the location of grinder stones firmly fixed to the ground on the both east and west sides for application of lime as a daily ritual to the stupa conveniently convey that it was a place of worship in the monastery.

The site yielded pottery represented by dull red (brown), black, burnished red, pinkish red, grey and red polished wares assignable to the fourth-fifth century AD. The dull red ware shows unslipped and slipped variety represented by thin and thick medium-to-large sized bulbous, globular and carinated vases with nail-headed, triangular, externally beaded, cordoned rims. The pinkish red is of slipped and burnished variety represented by small-to-medium sized vases, lid-cum-bowls, spouted-vases etc. with everted featureless rim, out-turned rims and nail-headed rim. The slipped and burnished red ware is represented by small-to-medium sized bulbous and carinated vases with splayed out, rebated, beaded, flanged rims. There are also few tan ware sherds. The black ware is found in dull and fine varieties. The fine one is burnished on the exterior side, represented by medium sized bulbous and carinated vases with beaded, featureless, everted rims with occasional mica content. The grey ware is burnished and slipped variety found in medium sized globular vases with beaded, splayed out, elongated oval rims. There are also a few sherds of red polished ware encountered in the form of sprinklers. A few sherds of burnished black ware are also found as residuals. Overall dull red and dull black wares of utilitarian variety dominate the pottery assemblage.

A circular portrait coin of Byzantine king Theodosius, in gold, datable to AD 402 to 450

(pl. 74) was collected from the deposit belonging to disuse phase, which gives a relative date to the site. This coin has two perforations perhaps under used as a pendant.

A plaque showing Mahishasuramarddini (pl. 75) with a tenon at the base of pinkish sandstone (20x9cm) was also recovered from the disuse phase of the site, with feature similar to the Vakataka art and this was perhaps under worship by the ancestors of the artisans.

Another small fragmentary limestone panel depicting two human heads similar to the pre-Vakataka times, with floral designs was found.

Iron and copper objects found during the excavation include nails used in the roof, rivets, arrow-heads, lances, blade fragments, knives, rings, collyrium stick, etc. Also found were copper alloy cat bell, and rings.

Besides, stone querns and mullers, beads of terracotta, semiprecious stones, shells and glass, bangles of shell, ivory pendant etc, were also recovered.

The Ajanta caves are dated on the basis of inscriptions found in the caves from early Christian era to the Rastrakuta times. The major caves were excavated during the time of the Vakatakas, i.e, fourth-fifth century AD. As such no datable finds like indigenous coin could be collected except a portrait coin in gold of Byzantine king Theodosius (AD 402-450), found from the disuse phase of the structures on the site. This gives a relative date to the site. Based on the pottery and the *adhishthana* mouldings on the brick wall of the monastery, the site can be dated between AD fourth and fifth century. However, further excavations might reveal some datable finds for precise dating of the finds.

### 35. Exploration at Ajanta Caves, District Airangabad

Under the guidance of S.V. Venkateshaiah a team consisting of M. Mahadevaiah, R. Krishnaiah, V.D. Jadhav, H.S. Naik, H.R. Desai, P.G. Deshmukh, of the Aurangabad Circle, of the Survey, carried out a systematic exploration on the left bank of River Waghora to trace out the ancient steps/pathways from various caves down to the river.

During the course of exploration the remains of the ancient step/pathways were traced in front of the Caves 1,2,4 in-between Caves 5 and 6 in front of Caves 7,11,16,17 and 21. Some of the steps were either missing or damaged due to various human and natural activities.

### 36. Excavation at Ellora, District Aurangabad

Before landscaping programme under AEDP funded by JBIC, Japan, scientific debris clearance was taken up in front of MTDC canteen to know whether this area is archaeologically potential or not. A trial-trench laid by H.S. Naik under the direction of S.V. Venkateshaiah, of the Aurangabad Circle of the Survey revealed beads of jasper, chalcedony and terracotta, besides, sling ball, hopscotch and unidentified bone object. The ceramic assemblage comprises red ware, red ware with chocolate paint. The main shapes are bowl, vases, big storage-jar and different sizes *of handis.* No structural remains could be encountered.

### 37. Exploration in District Buldhana

V.D. Jadhav, of the Aurangabad Circle, of the

**Plates 74-75**



74



75

*Ajanta: 74, gold coin and 75, plaque depicting Mahishasuramarddini*

Survey, during the course of exploration in Lonar taluk of District Buldhana, discovered the following sites of archaeological importance.

| ***Village/Site*** | ***Nature of remains*** |
|---|---|
| Pimpalner | Small fortress with Masjid, Baradari, Burj of bricks and stone, arch gate belonging to Maratha period. |
| Rajpur | The remains of Vishnu temple on a small hill near the village and loose sculpture of Vishnu, Siva, *vyala,* etc, belonging to the *c.* eleventh-twelfth century AD. |

38. EXPLORATION IN DISTRICT CHANDRAPUR

The Excavation Branch-I, Nagpur, of the Survey, under the direction of S.K. Mitra, assisted by N.C. Prakash and S.M. Khairkar, discovered an early historical site at Mahagaon Reet Devastanam (20° 04' 00" N; 79° 28' 21" E) 18 km on the Chandrapur - Mul Road. The site yielded red polished ware, micacious red ware, red-slipped ware, dull black ware, assignable to the Satavahana period.

Besides a good number of hero-stones / «///-stones were located on the mound which belong to the Gond period. The height of the .ra/Z-stones varies from 60 cm to 2 m and found in four rows.

39. EXCAVATION AT DHAMNA (LINGA), DISTRICT NAGPUR

The Department of Ancient Indian History, Culture and Archaeology, Nagpur University, Nagpur, excavated four megalithic burials out of forty-eight located in three different clusters in a horse-shoe shaped slopes of a slightly elevated plateau on the south-east and south-west banks of the Vena reservoir, situated between the villages Peth and Dhamna (Linga) (21° 8.30'N, 78° 51'E) about 25 km from Nagpur-Amravati Road (NH-6). The excavation was conducted under the joint direction of Chandrashekhar Gupta and Ismail Kellellu, assisted by Chandraprakash Saharkar, Pandurang Uikey, the students of M.A. Part-I and Part-II besides the research scholars of the Department.

All the exposed megaliths belong to the cairn and carin circle types, with each one having an individual character particularly in respect of their making and architecture. All the excavated burials of cairn circle type (megalith Nos. 1,8 and 17) have invariably revealed apsidal peripheral burials for the first time in India.

All the peripheral burials are east-west oriented with a slight deviation on the east. Most of the human skeletal remains are of secondary or fractional nature but buried in a proper anatomical alignment along with the burial furniture comprising pottery, ornaments and both copper and iron objects.

It is very interesting to note that about one meter south-east of one of the unexcavated megalith (No. 19) traces of urns were noticed thoroughly destroyed by the seasonal rain gully (drain). On close observation and section scraping the urns turned out to be oval sarcophagi

containing post-cremated bones of children with lids to cover them. The one intact sarcophagus is oval or boat-shaped, made of ill-baked dull red ware with a featureless rim and a flat base. It is 45 cm long, 15 cm wide and 12 cm deep. The lid, which closely fits the sarcophagus, is also made of dull red ware with a thick beaded rim. The sarcophagus, is also made of dull red ware with a thick beaded rim. The sarcophagus, beside post-cremated and charred bones of a child, revealed a *tatanka* (ear-stud) made of glass. The size of the ear-stud suggests that the wearer must have been a child. This sarcophagus seems to be the smallest of all sarcophagi so far encountered in India. With a view to ascertain the relationship between these three sarcophagi and the adjoining megalith (No. 19) will be taken up for excavation in the next season.

Megalith — 1 : is a cairn circle (oval) with a double stone rings made up of 30 cm thick cobbles of basalt having an inner diameter ranging from 7.9 m (E W) to 8.16 m (NS), and an outer diameter ranging from 10.6 m (EW) to 11.9 m (NS). Very interestingly, the space between the two rings was filled up with small basalt pebbles apart from a small belt of red sandstone chips. The megalith is situated on the southwestern end of the burial complex (pi. 76).

The burial goods comprising a big lamp stand, a small axe with cross ring fastener, a nail parer and a thin double-edged axe shaped cutting instrument are all of iron (pl. 77). A few bones of animal and pottery comprising red ware, black ware, black-and-red ware and micaceous dull red ware and a few sherds of black painted red ware with the main types comprising bowls, vases, dishes and basins were found in association with the iron implements. The discovery of a few post-holes along the outer ring of the megalith in the southwestern quadrant is a noteworthy find.

At the centre of this megalith on the *murrum* surface of U-shaped shallow channel with a width ranging between 15 and 20 cm, and its mouth opening towards east was encountered. The ends of the two arms had two different shapes - the northern arm had a pointed snake-tail like end while the southern arm had an oval head-like end, both connected with a straight channel on the west. The structure had a heap of round basalt pebbles and sandstone chips in the middle (pl.78). A small post-hole was encountered below the heap in the centre. This strange structure however, did not yield anything. Near the inner circle ring on the southern end remains of a charred wooden object (post ?) was also found. The entire megalith was filled up with black cotton soil mixed with basalt cobbles and pebbles. This megalith yielded a peripheral burial containing some pottery.

Megalith-8 : has big basalt angular stones for its inner and outer rings with their diameters ranging between 10 m and 11.85 m respectively. The central pit oriented east-west with three different levels was dug into the bed-rock and revealed with typical megalithic pottery, iron chisels and nail parers. Articulated human skeletal remains buried upside down in the black cotton soil filling at the centre is a unique discovery of this burial. It has usual black cotton soil filling but given a beautiful petal-like pebble decoration on the top. This megalith has further revealed fourteen peripheral burials - eight in the northeastern quadrant, three in the southeastern quadrant and one each in the southwestern and northwestern quadrants, all apsidal and mostly east-west oriented with slight deviation in the angles (pls.79-80).

Plates 76-77



76



77

*Dhamna (Lingā): 76, megalith 1, double ring circle* and 77, *megalith 1, pottery and iron objects in the SW quadrant*

All these burials yielded typical megalithic pottery, iron objects with the most of them also yielding human skeleton remains comprising either just one molar tooth, or a number of teeth or skull followed by upper/lower limb bones. In all the cases, the bones are in a very bad state of preservation. Interestingly, while the main burial, cairn circle is filled with black cotton soil and pebbles, the peripheral burials are invariably filled with loose brownish to yellow *murrum* having stone capping as a demarcation of each burial.

Megalith 12 A: is one of the smallest megaliths of cairn type, the rubble heap having a diameter of just 1.6 m. On excavation, this burial revealed an east-west oriented rectangular pit measuring 2.3 m (NS) and 3.45 m (EW) cut into the *murrum* and soft bed-rock. The pit was lined with basalt boulders of medium size only on the south and north. Almost a complete skeleton of an adult was kept on the bed-rock floor along with burial furniture comprising pots, bowls, dishes and iron objects - chisels, nail-parers, placed only on the southern side. The pit is then filled with black cotton soil and stones.

Megalith 17: is egg-shaped and one of the largest megalithic burials at Dhamna having a double circle of big basalt angular stones (pi. 81). The inner circle of the megalith measures 10.70 m (NS) and 11.60 m (EW) in diameter while the outer ring measures 13.35 m (NS) and 14.45 m (EW) in diameter. The east-west oriented central pit is slightly oval in shape. The pit was dug in the natural *murrum* and at a depth of 0.70 m to 0.78 m, the floor of the pit yielded human skeletal remains comprising mostly long bones kept in a criss-cross pattern and buried at different places within the pit along with the usual burial furniture of megalithic pottery, iron objects and a copper bowl (pl. 82). Interesting features of this megalith include a small passage chamber measuring 3.05 m (E W) and 1.5 m (NS) attached to the inner ring exactly on the southern side of the circle and fifteen apsidal peripheral burials- six on the south-eastern side and nine on the northeastern side. It is interesting to note that northeastern and southwestern quadrants have not revealed any peripheral burials. Like the other peripheral burials, these burials are also rectangular, lined with stones and east-west oriented. Interestingly, while the peripheral burials on the southeastern quadrant revealed only fractional human skeletal remains, three of the peripheral burials in the northwestern quadrant yielded extended burials. True to their megalithic nature, all the megaliths yielded megalithic pottery and iron objects. As regards the filling of the main burial, it was all packed with black cotton soil mixed with pebbles and stones. A skull with a mandible with all the teeth intact and long bones were found kept on the natural *murrum* just outside the natural pit on the northern side. This, too, has pottery as its burial furniture kept on the eastern side just above the skull. The southeastern quadrant yielded copper objects including an inverted basin, and a deep bowl with a thin lid having a final showing eight birds perching face-to-face on a ring; iron objects like cross-ring fastener axe (pl. 83), a rapi and a spoon with a broken handle and three spherical beads made on chert, jasper and crystal. Other items include typical megalithic pottery along with an hour-glass shaped bowl with a central hole in black-and-red ware. The southwestern quadrant revealed many ashy patches on the floor in one of which a pair of small impure gold rings of a child were found. The black cotton soil filling topped by artistically arranged pebbles is one of the interesting features of this megalith. The filling

Plates 78-79



78



79

*Dhamna (Linga): 78, megalith 1, u-shaped central pit* and 79, *megalith 1, pottery and iron objects in the SW quadrant*

Plates 80-81



80



81

*Dhamna (Linga): 80, megalith 8, close-up of peripheral burials* and 81, *megalith 17, oval-shaped circle*



82



83

*Dhamna (Linga)*: 82, *megalith 17, peripheral burials in the NW quadrant* and 83, *axes with double ring fasteners*

Plates 84-85




84



85

*Dhamna (Linga)*: 84, *nail-parers* and 85, *chisels*

also yielded a few iron objects comprising nail-parers and chisels (pls.84-85). Since all these excavated burials are from one cluster, the excavation of burials in two other clusters is expected to reveal some more

**40. EXPLORATION IN DISTRICT NAGPUR**

V.D. Jadhav, of the Aurangabad Circle, of the Survey, carried out exploration of submerged area in Nagpur district and discovered the following archaeological remains:

| *Site* | *Taluka* | *Nature of remains* |
|---|---|---|
| Herwa | Umrer | Microliths including fluted cores, backed-blades, burins and points |
| Pimpalgaon | Narkhed | Microliths including fluted core and blades |
| Turagtondi | Hingna | Microliths including blades and points |

41. EXCAVATION AT ELEPHANTA, DISTRICT RAIGAD

V.D. Jadhav, assisted by D.T. Asar, S.V. Pandit under the guidance of S.V. Venkateshaiah, of the Aurangabad Circle, of the Survey, conducted excavation at ancient brick stupa in Elephanta Island.

The brick stupa, a protected monument under the Survey, is located on eastern hillock. It is nearly 182m in diameter with stone boulder enclosure. The top of the dome is nearly 8.00m in diameter. Burgess dug at its centre in AD 1882 in search of the relic chamber. There is no such report since then about the site being examined thoroughly so far as structures are concerned. On the basis of the last year's exploration, the excavation was taken up at the site. Various types of bricks such as diamond, triangular, half moon shaped etc. were found. Five trenches were laid on the eastern fringe of the mound from top to bottom as Al to XE1, measuring 5 m x 5 m. A semi-circular flooring like structure was noticed in Trench XB1. no other important antiquities were found.

## MANIPUR

42. EXCAVATION AT KOUTRUK, DISTRICT IMPHAL WEST

S. Bheigya Singh and S. Rupoban Singh, of the State Archaeology Department. Government of Manipur, assisted by K. Indrani Devi, K. Dinamani Singh, K. Gunindro Singh, N. Kumar and L. Ibomcha Singh explored the northwestern periphery of Imphal Valley at Koutruk in the north-west of Imphal, at a distance of about 18 km.

In addition to the excavation of secondary urn burial at Sekta a number of secondary burial sites have been reported from the periphery of the Imphal Valley earlier. Koutruk is one such site reported. During a preliminary investigation conducted at Koutruk in 1998 by the State Archaeology, an urn burial site was reported on the slope of the hill locally known as 'Tesarot'. A few pots, vases, bronze rings etc., were recovered.

This season's work confirmed the mode of burial as revealed in earlier explorations in this area. Therefore, a trial-trench 4x4 m laid on the eastern slope of the 'Tesarot' hill, was unearthed.

*A* cultural deposit of 1.92m with the characteristic material of the secondary urn burial was brought to light. Vase was kept at the side of each burial. At the lower part of the deposit, the vases were replaced by both long and narrow-necked pots bearing sun motif design.

The pottery recovered from the burial are usually red in colour. The shapes being globular pots, vases, long narrow-necked pots, etc. All are hand-made, with both plain and decorated types with applique sun motif and stamped geometric designs. The urns are medium in size.

Grave goods recovered from the site consists of a few coins, one ring, a piece of bronze bangle, fragments of copper plates. The secondary burial at Koutruk may be dated between the later part of the eighteenth and the early part of the nineteenth century.

## MEGHALAYA

### 43. EXPLORATIONS IN DISTRICTS EAST KHASI HILLS AND JAIN HA HILLS

The Prehistory Branch, Nagpur, of the Survey, under Shivananda V, assisted by K.M. Girhe and R.K. Dwivedi, Gayasuddin and T.B. Thapa, undertook explorations in Jaintia Hills and East Khasi Hills and reported the following sites of archaeological importance.

| ***District*** | ***Site*** | ***Nature of remains*** |
|---|---|---|
| East Khasi Hills | Soryugkhom (91° 59'N; 25° 32'E) | Group of Menhirs |
| -do- | Mowlyndep (91° 57'N; 25° 32'E) | Menhirs |
| -do- | Mowlyngad (91° 55'N; 25° 31'E) | Menhirs and dolmens |
| -do- | Laitkor (91° 54'N; 25° 32'E) | Menhirs and dolmens |
| -do- | Barapani Dam Site (91° 55'N; 25° 39'E) | Lower Palaeolithic tools |
| Jaintia Hills | Jowai (92° 12'N; 25° 26'E) | Menhirs |
| -do- | Mawlyngkneng (92° 5'N; 25° 33'E) | Menhirs and dolmens in cluster |

| *District* | *Site* | ***Nature of remains*** |
|---|---|---|
| Jaintia Hills | Mukandor (92° 7' N; 25°33' E) | Menhirs |
| -do- | Mukhla ($92^0$H'N;25°29'E) | Menhirs |

**-do-**

The exploration along the Umian river near Barapani Dam site yielded two handaxes made on schist and a chopper made on sandstone. The former is in rolled condition and the latter is somewhat fresh.

**ORISSA**

44. EXCAVATION AT UDAYGIRI 2, DISTRICT JAJPUR

In continuation of the previous year's work *(1999-2000,* pp. 117-124), the Excavation Branch - IV, Bhubaneswar, of the Survey, undertook excavation at Udaygiri-2, under the direction of Bimal Bandyopadhyay and co-direction of A.K. Patel, assisted by P.K. Dikhit, G.L. Katade, S.K. Dey, S.K. Khuntia, B.B. Badamali, R.N. Sahoo and S.K. Bhoi, with the objectives of examining the open area in front of the monastery and shrine - complex as also to unearth associated structures and drains.

Altogether five trenches were taken up for excavation numbering XA1, XB1, A1 and B1. In Trench YB1 northern wall of the shrine-complex was found running further towards east with a drain running parallel to it. Three coursed circular brick structure which was partly exposed during the last season's work was completely exposed. In Trenches XA 1 and XB 1 a stone paved floor in front of the excavated monastery was exposed (pl.86). In Al, the main drain of the monastery was found extending towards north and also a massive wall (1.25m thick) running parallel to the drain. A stone wall with mouldings was exposed in two quadrants of B1 running north-south. The nature of the structure could not be ascertained since it was partially exposed. However, it could be a plinth of a structure (fig. 16).

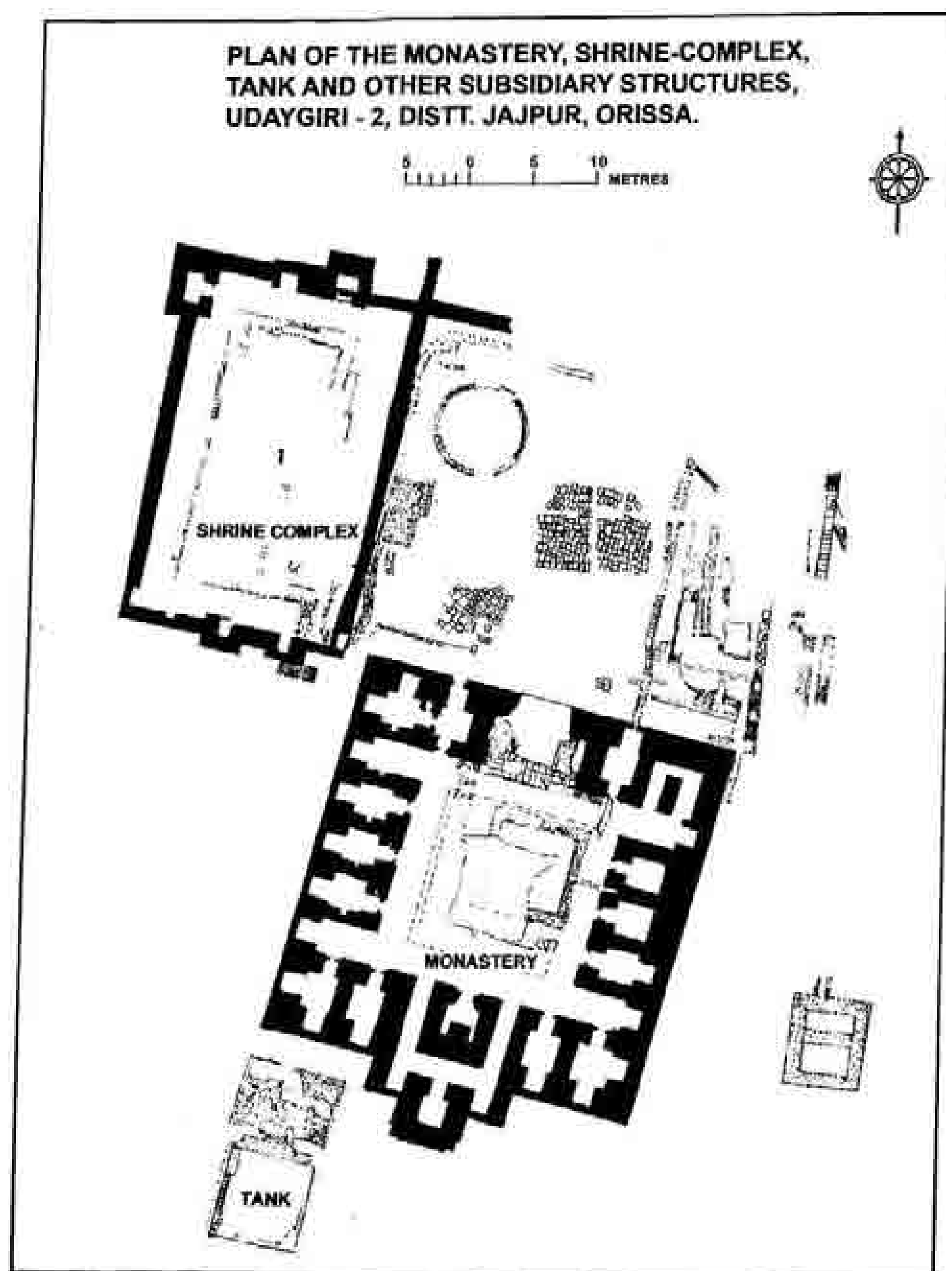
Important antiquities of this season were terracotta animal figurines (pl.87), fragmentary stone inscription, fragmentary architectural member and two broken sealings one of which was bearing a stupa at its center (pl.88).

Pottery assemblage included red and grey wares and the main shapes were bowls, high-necked pots, spouted-vessels, lamps, miniature pots etc.

45. EXPLORATION IN DISTRICT KALAHANDI

During the course of exploration, on the right bank of Upper Tel River Valley in the Dharamgarh tehsil of Kalahandi district, reconnaissance survey work carried out by P.K. Dikhit, GL. Katade, S.K.




PLAN OF THE MONASTERY, SHRINE-COMPLEX,
TANK AND OTHER SUBSIDIARY STRUCTURES,
UDAYGIRI - 2, DISTT. JAJPUR, ORISSA.
5 0 5 10 METRES
SHRINE COMPLEX
MONASTERY
TANK

Plates 86-87



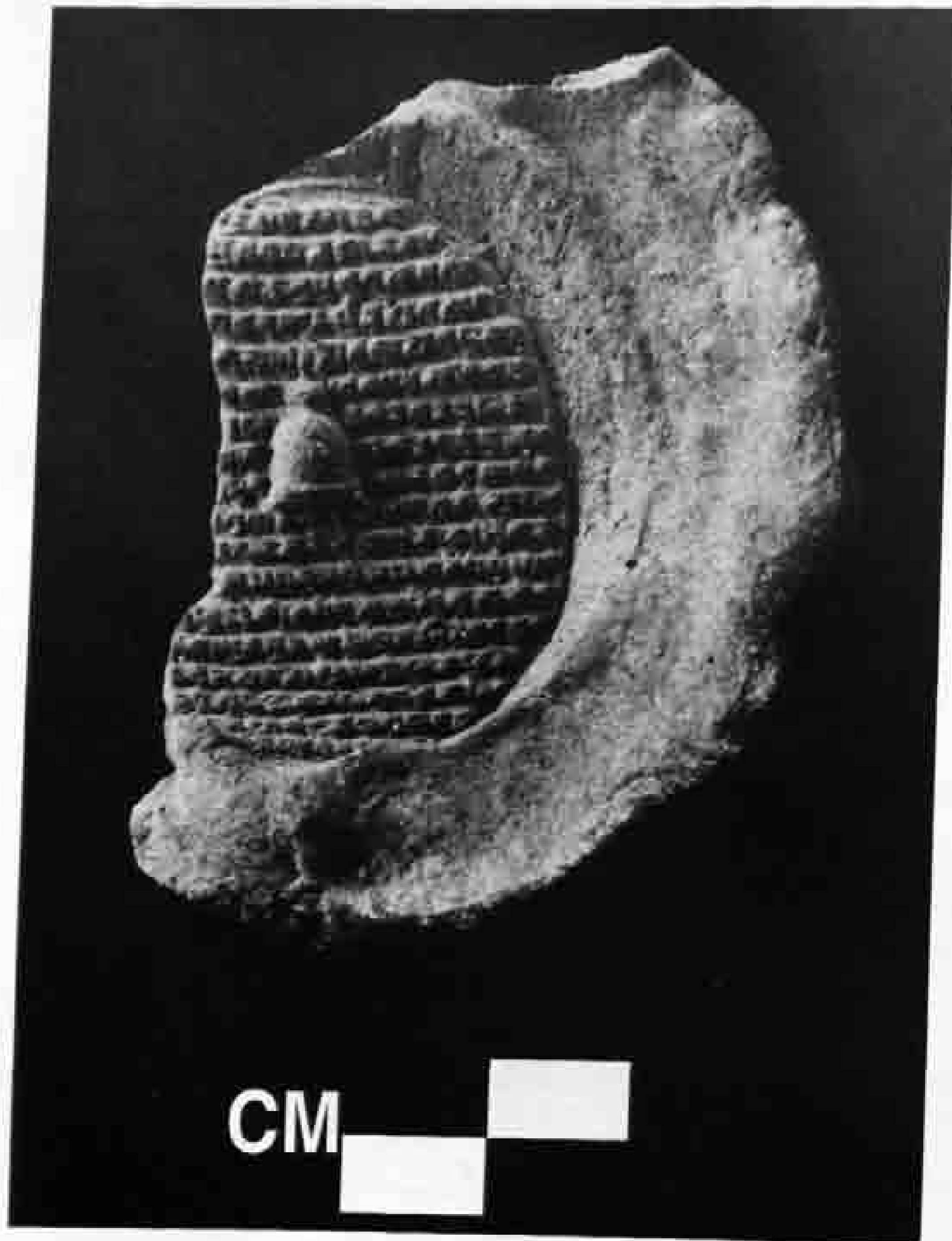
86




87

*Udaygiri 2: 86, three coursed circular brick structure and drain of the shrine-complex* and 87, *terracotta animal figurines*

Plate 88




*Udaygiri 2: terracotta sealing with stupa*

Khuntia, R.N. Sahoo, under the supervision of A.K. Patel and direction of Bimal Bandyopadhyay, of the Excavation Branch IV, of the Survey. In all sixty-six villages were explored out of which only ten villages yielded antiquarian remains ranging from Lower Palaeolithic to Mesolithic period.

| *Village* | *Site* | *Nature of remains* |
|---|---|---|
| Chichalguda | Chichalguda-I (19º51´16”N;82º52’53”N) | Mesolithic |
| Chichalguda | Chichalguda-H (19°51'05"N; 82°53'34" E) | Mesolithic |
| Chhilpa | Jenadunguri (19°5r54"N;82°43'51"E) | Mesolithic |
| Jharbandh | Jharbandh (19°55'08"N; 82°58'32" E) | Lower Palaeolithic |
| Khairpadar | Mihiri Nala (19° 53'23" N; 82° 50" 00'E) | Mesolithic |
| Mankadshola | Kendumuli (19° 56'45" N; 82° 57'20" E) | Mesolithic |
| Pariagaon | Pariagaon (19° 56'03" N; 82° 57'25" E) | Mesolithic |
| Pilkia | Pilkia (19°52'34"N;82°52'0"E) | Mesolithic |

## PONDICHERRY

### 46. Exploration in the University Campus, Pondicherry

In one of the recently conducted prehistoric exploration in the university campus, Pondicherry, P. Rajendran along with S. Kulasekharam, of the History Department of the Pondicherry University, discovered a rich Mesolithic site on a stabilized sand-dunes surface. Large number of stone tools made on quartz flakes, nodules, and blades were collected along with hammer stones. These are non-microlithic having certain characteristics of the Upper Palaeolithic tools. Blade like flakes and burin are in good number and similar types were discovered last year from Bommayarpalayam in Villupuram district of Tamil Nadu. The site at Pondicherry is hardly three km away from the Bommayarpalayam site. The nature of the stratigraphical occurrence of stone age implements at Bommayarpalayam suggests a higher antiquity to the industry, which is more or less similar in characteristics to the one found at Pondicherry.

47. EXCAVATION AT CHHAT, DISTRICT PATIALA

The Department of Cultural Affairs, Archaeology and Museums, Government of Punjab, Chandigarh, resumed excavation *(1999-2000,* pp. 127-128) at a historical village Chhat (30°36' N; 76°50' E), under the direction of K.K. Rishi, assisted by Kuldip Singh, Gurdev Singh, Heera Singh, Pardeep Singh and Rajinder Singh with the purpose of ascertaining the cultural sequence apart from the extension of various cultures that cropped up at the site from the earlier historical periods. The antiquity of this site, as reported by B.B. Lai, goes back to the Mahabharata period, i.e., Painted Grey ware (PGW) *(circa* twelfth century BC).

With this view, different areas were surveyed thoroughly to select a suitable location. The highest point on the southern fringe of the mound was taken up for digging which revealed ample evidence of various cultures through a vertical cutting of the mound. In this section many structural walls, pots and ring-wells were noticed. The water marks of river Ghaghar, which is now a kilometer away from the present course, are visible on the exposed sections.

Five Trenches XA-I, A-1,B-1, XA-2 and A-2 of 10x10 m were laid and the structures of *lakhauri* bricks are visible from the top. It is said that the area under excavation was occupied by the folk who migrated to Pakistan during independence. Mention may be made of a glass amulet with engravings in a Persian script, recovered from Trench XA-1, Qdl.

Some objects like terracotta beads, semi-precious stone beads, shell bangle pieces, iron objects, bone styluses, amulet of glass and terracotta besides a coin mould depicting a Nandi and the word "Sri Samant Deva" in Devanagari script, copper coins, pots in various shapes and sizes comprise other finds. After the end of these *lakhauri* brick structures, the second phase of structural activity of medieval period was noticed in all the trenches. Reuse of Kushan bricks and brickbats could be seen in small rooms, mud floor and hearths.

In Trench XA-1, Qd-I, two walls of burnt-bricks was traced at a depth of 1.80m, 2.15m and 1.50m, oriented north-south and east-west. Burnt- bricks similar to the Kushan bricks with brick bats were used in these walls/structures. The width of the walls approximately is 68 cm. The length and breadth is 2.30x2.10m. There are fifteen courses of bricks in one wall and eight in the other. A mud floor on the northern side of the room was also exposed which was disturbed by a huge pit on the other side. The remains of second room in Trench XA-1, Qd 2, Trench A-l, Qd-1 were also exposed. Two rooms share a common middle wall. The walls of these rooms are badly damaged by pits and brick robbers. The room is neither square nor rectangular with a varying dimension. Just adjacent to the Room 2, a wall (width of 60 cm) in the east and south direction was exposed (Room 3) at a depth of 2.12 m.

One of the important finds include iron implements comprising axes, pick axes, a circular ring, hammer, chisels, etc., recovered within a room lying on a mud-floor near a hearth at a depth of 2.30 m in layer (2) in Trench XA-1, Qd 3. The nearby hearth also indicate that these were smelted by the artisans locally.

Nearly one hundred and forty antiquities comprising thirty-two terracotta beads, copper coins, sixty-one semiprecious beads, fourteen shell bangle pieces, seven bone/ivory styluses, five miscellaneous objects, five metal/copper objects and twelve terracotta miscellaneous objects of both late medieval and medieval periods were collected.

## TAMIL NADU

### 48. EXCAVATION AT PALI R, DISTRICT KANCHTPURAM

The Department of Ancient History and Archaeology, University of Madras, conducted a small-scale excavation this year at village Palur (12° 47' N; 79° 55' E), under the supervision of P. Shanmugam, assisted by R. Ponnusamy and M. Seran, in addition to final year MA. students of Archaeology.

A Trench (PLR-1) of 6x4 m was laid on the northern part of the village and on the eastern side of the metalled road from Palur to Kulattanceri. A cultural deposit to a depth of about 2.25 m with seven layers above the natural soil was identified. In the lower levels, the cultural material was found in the ashy soil. The upper layers were mixed with brickbats and rubbles indicating some structural activities during the medieval period.

Black-and-red ware, black ware, red-slipped ware, red ware with shapes like conical jars, urns, and other utilitarian vessels apart from three copper coins, a quartz bead, terracotta seal, gamesman, hopscotches and rubbing stones comprise the finds from the excavation. Some iron objects and copper slags were also found in small quantities. At a depth of about 1.60 m were also found many pieces of iron slags with a broken portion of blow pipe. The above evidence points to some iron smelting activity at Palur.

On the basis of the material collected from the site, the following tentative chronology is suggested.

Period I : from 300 BC to AD 300

Period II : from **AD** 300 **to 800**

**Period III: from AD 800 to 1400**

### **49.** EXPLORATION IN **DISTRICT** TIRUVALLUR

In the course of village-to-village survey in Ponneri taluk, T. Sreelakshmi, of the Chennai Circle, of the Survey, noticed the following antiquarian remains.

| ***Village/Site*** | ***Nature of remains*** |
|---|---|
| Angadu | Siva temple having apsidal plan *(Gajaprishta)* of early medieval period |
| Erumaivettipalayam | Siva temple, Devi shrine of Vijayanagara period, inscription of sixteenth century AD, Rama temple of fifteenth century AD and sherds of medieval period |
| Sholavaram | A ruined Siva temple of early Chola period |

| ***Village/Site*** | ***Nature of remains*** |
|---|---|
| Sottupakkam | Siva temple of Chola period, Devi shrine, loose sculpture, inscription of medieval period, ruined *mandapa* of late Vijayanagara period |
| Vijayanallur | A loose sculpture of Jyestha flanked by attendants of eighth century AD |

### 50. Exploration in Lower Palar Basin, Districts Vellore and Kanchipuram

Under the direction of K.T. Narasimhan, assisted by Satyabama Badhreenath, G. Thirumoorthy, M. Nambirajan, K.P. Mohandas and T. Sreelakshmi, of the Chennai Circle, of the Survey, carried out exploration in lower Palar Basin to trace the settlement pattern of the megalithic people in the region. The exploration yielded megalithic sites at Ananthalai, Kadappanthangal, Sathambakkam, Maganipattu, Kilambadi, Perumgalmedu, Musarvakkam in District Vellore and Edaiyattur in District Kanchipuram. Besides, early historic sites were also encountered.

### 51. Exploration in District Vellore

In the course of village-to-village survey in taluk Arakkonam, K.P. Mohandas, of the Chennai Circle, of the Survey, noticed the following antiquarian remains.

| ***Village/Site*** | ***Nature of remains*** |
|---|---|
| Agavalam | Early medieval habitational site, loose sculptures of *linga* and *nandi.* two stone pillars with inscription, sherds of red ware, bricks (29x22x6 cm) |
| Kadambanallore | Siva temple of early Chola period, loose stone sculpture of Goddess |
| Mangattucherri | Remains of temple, loose sculptures of Ganesa, *nandi, yoni-pitha* and other architectural members of the Vijayanagara period |
| Mosur | Siva temple of Vijayanagara period |
| Murungai | Middle Palaeolithic tools, sherds of coarse red ware |
| **Paramesvara-mangalam** | Siva temple, loose sculptures of Ganesa, Karttikeya, Bhairava (eighteenth century AD) |
| **Pinnavaram** | Loose sculptures of Vishnu, goddess, *linga* with *pitha* of fifteenth-sixteenth century AD |

| ***Village/Site*** | ***Nature of remains*** |
|---|---|
| Punnai | Siva temple of Vijayanagara period |
| Sayanagaram | Siva temple, loose sculptures of Dakshinamurti, Bhairava, Karttikeya of late Chola period |
| Tirumadalapakkam | Siva temple of Chola period |
| Uliyanallur | Ruined Siva temple, loose stone sculptures of Dakshinamurti of late Chola period |

52. EXPLORATION IN DISTRICT VILLUPURAM

In the course of village-to-village survey in taluk Gingee, M. Nambirajan, of the Chennai Circle, of the Survey, noticed the following antiquarian remains.

| ***Village/Site*** | ***Nature of remains*** |
|---|---|
| Icchur | Megalithic cists and cairn circle, temple of Nayaka period |
| Kalaiyur | Loose sculptures of Ganesa, Karttikeya, Tamil inscription of medieval period |
| Koravanadal | Siva and Ganesa temples of Nayaka period |
| Nattarmangalam | Three dilapidated temples and an inscription of medieval period |
| Seturayanallur | *Mandapa* of Nayaka period, bronze image of Vishnu with Bhudevi and Sridevi |
| Solankunam | Neolithic and megalithic site, black-and-red ware, pieces of sarcophagus, Neolithic celt |
| Vadapattur | Ganesa temple of medieval period |
| Virapatti | *Saptamatrika* panel (fifteenth-sixteenth century AD) |

53. EXCAVATION AT SHYAMSUNDAR TILLA, DISTRICT SOUTH TRIPURA

In continuation of the earlier work *(1999-2000,* p. 155), Syed Jamal Hasan, assisted by K. Lourdusamy, C. Kumaran, J. Das, A. Kumar, of the Guwahati Circle, of the Survey, resumed excavation at Shyamsundar Tilla and exposed the complete plan of the brick-built stupa (pi.89)

The stupa is cruciform on plan with *pancharatha* order, the superstructure of which is

**Plate 89**



*Shyamsunder Tilla, Pillak: exposed brick stupa*

badly damaged. The dimension of the stupa is measured across the *medhi* 34.50 m long. *Medhi,* with an extant height of 1.70 m is measured 3.60 m radius all around. Four small cells were found attached on four cardinal directions. The walls of the cells survived only upto a height of 1.50 to 2m with extant courses of burnt-bricks 25 to 30 in number. There is a 3.60 m wide *pradaksina-patha* running all around, the extant side walls of which on either sides of the *pradakshina-patha* survive upto 1.25 m to 1.60 m and possesses twenty-five to thirty courses of burnt-bricks.

A large number of antiquities mainly terracotta plaques depicting Dhyani Buddha, Karttikeya, Kirttimukha, dancers, musicians, archers, *gandharvas, kinnaras,* ducks, parrots, eagles, reptiles, *makaras,* lotus flower, *kalasas,* etc were collected from the excavation. Among the notable sculpture an image of Avalokitesvara (1.70 m heigh) flanked by Hayagriva and Tara. Another image deserves mention here is of Avalokitesvara, was found near the *medhi.* No datable object could be found, but on the basis of stylistic features and structural details of the stupa the site could be dated to *circa* ninth-tenth century AD.

54. EXCAVATION AT THAKURANI TILLA, DISTRICT SOUTH TRIPURA

In continuation of the previous year's work *(1999-2000,* pp. 155-157), Sayed Jamal Hasan, assisted by K. Lourdusamy, C. Kumaran, J. Das and A. Kumar, of the Guwahati Circle, of the Survey, resumed excavation at Thakurani Tilla and exposed complete plans of the brick temples at the site.

Out of the three structural remains in brick a small brick temple was found on the extreme south-east corner of the mound near the entrance gate. The temple, square on plan, measures (7x7m) with extant remains of six courses of bricks for the side walls with a thickness of 40 cm. There is a central square platform of (3x3m), surrounded by 30 cm wide *pradakshina-patha.* The sizes of bricks used in the temple are 27 x 20 x 5 cm, 31 x 23 x 5.5 cm, 23 x 1 x 5 cm and 29 x 21 .x 5 cm.

Another structure, also a sanctum cella in bricks, lies on the northwestern side of the mound. The sanctum (6.5 x 6.5 m) is square on plan, with extant remains of 50 cm height externally. The central square platform measures 3.5 x 3.5 m. Sizes of the bricks used in the sanctum are 28 x 22 x 4.5cm, 21 x 17 x 6 cm, 30x23x6 cm, and 29 x 22 x 7.5 etc.

The ceramic assemblages consist of red ware, red-slipped ware, buff ware of wheel-made variety having medium-to-coarse fabric. The common shapes are bowls, miniature pots, *handi,* vases, dishes, etc. On stylistic features the remains could be assignable to *circa* ninth-tenth century AD.

## UTTAR PRADESH

55. EXCAVATION AT ANWAK, DISTRICT AZAMGARH

Muhammed K.K., assisted by Manoj Kumar Dwivedi, of the Patna Circle, of the Survey, conducted a trial-excavation at Anwak in tehsil Nizamabad in order to examine the antiquity of the mound, measuring 25 x 25 m and 7 m in height, with a modern temple. Trenches were laid at four points around the temple which revealed seventeen courses of an ancient wall, cell, pilaster with mouldings, niches with stucco images and a staircase; all indicating remains of a temple underneath. Moulded and decorative bricks were

used for decoration. Various sizes of bricks (38 x 22 x 6 cm), (45 x 23 x 9 cm) and (39 x 22 x 7 cm) were used. Pottery mainly red ware includes stamped potsherds, spouted pots, sprinklers, *handi,* vases, bowls and dishes. Few pieces of thick storage-jars were also found. One terracotta toy and a skin rubber were recovered from the excavation. On the basis of finds the site is assignable to Gupta period.

56. EXPLORATION IN DISTRICT AZAMGARH

Under the village-to-village survey scheme, Manoj Kumar Dwivedi, of the Patna Circle, Survey, explored forty-two villages and reported following two of archaeological importance sites in Lalganj tehsil.

| *Village* | *Nature of remains* |
|---|---|
| Antarkusha | Ruins of an old temple and a stone image of Vishnu |
| Khanpur | Remains of Kushan period and an inscribed stone pillar datable to the tenth century |

57. EXPLORATION IN DISTRICT CHITRAKOOT

During the course of exploration in District Chitrakoot, Nayan Anand Chakraborty and Sangeeta Chakraborty, under the direction of R.S. Fonia, of the Lucknow Circle, of the Survey, of the Survey, brought to light the following antiquarian remains:

| *Site-Locality* | *Nature of remains* |
|---|---|
| Bahari | Sher Shah Suri-ki-Baithak in *lakhauri* bricks, late medieval period |
| Ballam Baba pahari | Early historical rock-cut sculptures on the boulders |
| Banari ghati | Neolithic celt, adze, pestles on green schist |
| Bargarh Hill | Lower Palaeolithic tools: handaxe, ovate on quartzite and microlithic tools: blade, arrow-head on chert and jasper |
| Bargarh-ka-pahari (two-tiered rock-shelter) | Mesolithic and early historical paintings representing deer, bull, fishes, human figures with bow and arrow, geometrical designs in red and white |
| Biur | Remains of Chandella temple and sculptures in granite and sandstones |
| Brihaspati kund | Images of Vishnu, Ganesa, Parasurama, Brahma, Mahesh and *nandi* in human form in sandstone of Chandella period |

| ***Site/Locality*** | ***Nature of remains*** |
|---|---|
| Chanda Tak | Overlapping with prehistoric and early historic paintings depicting human and animal figures, geometrical designs in red, brown, black and white pigments |
| Dhaneya pahari | Lower palaeolithic tools: handaxe and chopper on quartzite |
| Kalhupur pahari | Remains of Chandella temple and sculptures in granite and sandstone |
| Garhwa hill (Lokhri) | Early historical cave temple |
| Kalbelia | Early medieval remains of temple and sculptures in granite and sandstone |
| Mandap pahari | Remains of Chandella temple and sculptures in granite and sandstone |
| Gargon Tola | Remains of Chandella temple and sculptures in granite and sandstone |
| Mohini | Remains of Chandella temple and sculptures in granite and sandstone |
| Nema | Early historical rock-cut sculptures in rock folding and boulders |
| Paharikhera | Mesolithic and early historical paintings depicting human figure with bow and arrow (fighting scene), standing human figures in a row and elephant carrying four persons on his back maintaining red ochre |
| Pathar kachhar | Sati Bai Temple, Masjid and Tomb of nineteenth century |
| Ranipur | Remains of Chandella temple arc[1] sculptures in granite and sandstone |
| | Early historical **rock-cut sculptures on huge boulders** |
| Sati Anusuiya | Overlapping **with prehistoric and early historic painting** depicting animal **and human figures in red ochre** |
| Siddhepur | |
| Sitapur | **Overlapping with prehistoric and early historic paintings showing animal figures and geometrical designs in red ochre** |
| Unchadih | **Remains of Chandella temple and sculptures in granite and sandstones** |

58. EXCAVATION AT DADUPUR, DISTRICT LUCKNOW

In continuation of the previous year's work (*1999-2000,* pp.180-181), the State Archaeological Department of the Government of Uttar Pradesh, under the direction of Rakesh Tewari and R.K. Srivastava, assisted by Ram Vinay, K.K. Singh, Rajiv Trivedi, Balaram Krishna, Ram Gopal Mishra, Manmohan Dimri and Ramjee Prasad, resumed excavation at Dadupur. Last year only a quadrant of 5 sq m was taken up which revealed cultural sequence of the site. The objective of this season's work was to corroborate the previous conclusions by extending the area of excavation and to locate the core area of occupation.

This year three trenches measuring 10 m x 10 m were laid down and the excavation was carried out in an area of about 20 sq m in the eastern part of the mound. The layers, dipping towards one direction, below the layer 8, clearly indicate that the cultural material of this part of the site is deposited in a huge natural depression. The layers, however, appeared regular and without any intermixing. This observation was further corroborated by three consistent radiocarbon dates. It may be noted that though the trenches were considerably pushed back towards the central portion of the mound, the core area could not be found.

This season's work revealed that instead of five fold cultural sequence, suggested last year, it would be appropriate to divide them in three periods. Period I, represented by 2-2.50 m thick deposit, Layers (8) to (12), is marked by the presence of iron along with an ill-fired distinct red ware, fine red ware, black-slipped ware, and black-and-red ware (in small proportion) in all the layers. Layer (12) seals a pit cut into the base of the depression. Red ware is consisting of hand-made and wheel-turned varieties. The red ware sherds bear cord impressions on their outer surface. The shapes include mainly bowls, dishes, and storage-jars etc. Charred bones were found in large quantity. A number of them bear cut-marks. Carbonized remains were also collected for the study of archaeobotanical remains. Burnt terracotta nodules, with reed marks recovered from the deposits of this period, indicate that the huts were made of wattle-and-daub. Presence of a few kiln burnt-bricks is notable. No brick-structure, however, was found. Other noteworthy antiquarian remains are consisting of iron artefacts, bone artefacts (mostly arrow-heads and awls), terracotta discs and beads, stone bead and hopscotches. Recovery of a number of antlers with sharp cut-marks along with finished and unfinished artefacts indicate that the concerned area was perhaps a factory site for the production of bone artefacts.

Following four radiocarbon determinations are available for the charcoal samples, collected last year from the deposits of Period I, sent to the Birbal Sahni Institute for Palaeobotany (BSIP) for dating.

BS-1822, layer (9)-1360 + 80 BC (Cal. 1679 (1522) 1442 BC); BS-1759, layer (10) - 1470 + 160 BC (Cal. 1882 (1685) 1465 BC); BS-1829, layer (12) - 4330 + 120 BC (Cal. 5284 (5189, 5184, 5059) 4857 BC); BS-1825, pit sealed by layer (12) 1524 + 90 BC (Cal. 1739(1706) 1695 BC).

Above dates are based on half-life 5730 years BS-1829 is apparently out of context. Taking other three consistent dates into account, the lower limit

of the antiquity of Period I may safely be suggested to *circa* 1500 BC (Cal. 1700 BC).

Period II, represented by 20-35 cm thick cultural deposit, layers (7) and (7a), is marked by the appearance of PGW. The sherds of this ware ' bear vertical and oblique strokes, besides circular and other elaborate designs executed with black pigment. Red ware, black-slipped ware, black-and-red ware, and plain grey ware are the associated ceramics. Three successive floors were marked at this level. Floor I is prepared with mud and rammed with small potsherds. An antler with-sharp cut-marks was found lying on it. The second successive floor is prepared with thick yellow mud. A big oven, full of ash, was found laid on it. Its outer limit is strengthened with *kankar* nodules. Two successive floors along with the ovens indicate their use for a considerable time. Charred bones with cut-marks and carbonized material were also found from the deposits of this period. Other antiquities include a few burnt-clay lumps with reed impressions, bone artefacts consisting of feathered and socketed arrow-heads, points, hop-scotches, terracotta beads, and iron artefacts.

Period III, represented by a 1.60 m thick deposit, layers (6) to (1), is marked by the presence of NBPW. Other associated ceramics include red ware, black-slipped ware, plain grey ware, and black-and-red ware. A few sherds were also represented in the upper levels of this period. NBPW is consisting of golden, silvery and black shades. Red ware is most dominant and represents fine-to-coarse fabric. Main shapes include bowl, dish, water vessel, storage-jar and miniature vessels. Some of the red ware and black-and-red ware sherds comprise cord impression on their outer surface. PGW sherds bear a painted band below the rim, oblique strokes and leaf pattern etc.

Middle levels of this period also revealed two successive floors. These floors, about 6-7 cm thick, were made of mud and ash and rammed with tiny potsherds. A number of post-holes were also marked along the floors. Burnt-clay nodules with reed marks, broken burnt-bricks, charred bones with cut-marks, bone artefacts in large proportion, antlers, beads made of terracotta and semiprecious stones, terracotta discs, iron and copper objects are the other important finds of this period. Presence of bone artefacts in large proportion is notable. A broken stone hammer, which was subsequently reused as a sharpener, is remarkable for its superb workmanship. It appears to be a representative of a prototype of metallic types.

### 59. Exploration in District Mahoba

In continuation of the earlier work, Regional Archaeological Unit, Jhansi, of the State Archaeological Department, Government of Uttar Pradesh, undertook village-to-village exploration, in development block, Panwari in District Mahoba, under Rakesh Tewari, Ambika Prasad Singh, assisted by S.K. Dubey and explored one hundred and ten villages in the region. The exploration of villages in the area revealed ancient site, monuments, stone sculptures and other archaeological remains. Amongst these, Bedon, Bihat, Bharwara, Chhatesar, Kashipura, Lohargaon, Mahobkanth, Nakara, Pathari-Kadim, Teiya, Teli Pahari are noteworthy.

A temple, datable to *c.* seventeenth-eighteenth century was traced in village Bedon. It is a double-storeyed temple, adorned with a Bundela *sikhara.* The sherds of black-slipped ware and red ware were noticed from the surface of the mound, situated on the right bank of River Dhasan, at village Bihat besides medieval sculptures,

*sati*-pillar, ruins of temples are also noteworthy find from this village.

Black-and-red ware, black-slipped ware and red ware were collected from the surface of the mound, located at the bank of River Brahma, at village Chhatesar.

A temple of Rama-Janaki, datable to *c.* seventeenth-eighteenth century at village Bharwara deserves mention. This double-storeyed temple, consists of glorious entrance, verandah, residential rooms and a sanctum. The images of Rama-Janaki are found installed as chief deity in the cella of the temple. The temple is adorned with a lofty Bundela *sikhara.* A Sivalaya datable to *c.* eighteenth-nineteenth century AD was traced at village Kashipura.

Stone temples, discovered from the village Teiya, are most important to mention here in. The first temple *(c.* tenth century AD), built of granite, is situated in the outskirts of the village amongst the agricultural fields. The temple consists of *arddha-mandapa,* based on two pairs of pillars, and a sanctum. The cella is adorned with Phamsana style of *sikhara.* The main deity is missing in the cella and no image is carved in the *lalatabimba* of sanctum doorway. Another group of *mandapika* shrines are built in the middle of the village. The group of the temples are topped by Phamsana style of *sikhara. Siva-linga* are found installed in some sanctums of these temples while rest are without any deity.

Built of *lakhauri* bricks in lime-mortar, a medieval reservoir and ruins of late medieval fort were noticed in village Maniki.

A double-storeyed temple of Radha-Krishna datable to the eighteenth century, was located at village Lohargaon. The temple consists of a sanctum and a verandah decorated with arch-entrances. The lofty Bundela *sikhara,* over the sanctum, adds to the beauty of the temple.

A list of villages with their archaeological finds, are given below:

| *Village* | *Nature of remains* |
|---|---|
| Bedon | Temple *(c.* seventeenth-eighteenth century) |
| Bihat | Black-slipped and red wares, medieval sculptures and *sad-pillar* |
| Bharwara | Rama-Janaki Temple of *circa* seventeenth-eighteenth century |
| Bijarari | Red ware |
| Budera | Temple of eighteenth-nineteenth century |
| Chhatesar | Black-and-red ware and red ware |
| Chouka | Medieval temple |
| Didwara | Ruins of medieval temple and sculptures |
| Kankaun | Medieval sculptures and ruins of medieval temple |
| Konia | Medieval red ware |

| | |
|---|---|
| Kashipura | Sivalaya of eighteenth century AD |
| Lohargaon | Temple of eighteenth century AD |
| Mahobkanth | Medieval sculptures |
| Maniki | Medieval reservoir and ruins of fort |
| Masudpura | Temple of Ram-Janaki of *c.* nineteenth century AD |
| Nakara | Black-and-red ware, black-slipped ware, NBPW and red ware |
| Naugaon | Siva temple *(c.* eighteenth-nineteenth century AD) |
| Panwari | Medieval red ware and ruins of temple of *c,* seventeenth century AD |
| Pathan Kadim | Medieval tank |
| Ripnor | Late medieval sculptures |
| Teiya | Early medieval temple, a group of early medieval temples and sculptures |
| Teli Pahari | Ruins of medieval temple |
| Umarai | Sivalaya of eighteenth century AD |
| Vijaypur | Temple of eighteenth-nineteenth century AD |

### 60. EXPLORATION IN DISTRICT MIRZAPUR

In continuation of the previous year's work *(1999-2000,* pp. 192-195), G.C. Singh, of the State Archaeology Department, Government of Uttar Pradesh, under the direction of Rakesh Tewari, resumed village-to-village exploration in Majhwa block of Sadar Tehsil of District Mirzapur.

The objective of the exploration was to locate ancient sites and antiquarian remains in all the villages of the area concerned and their documentation. The block under question is consisting of fifty-four revenue villages. During archaeological importance have come to light from these villages. On the basis of the surface finds from this area, the antiquity of the sites may be placed to *circa* 1000 BC.

The potsherds of black-and-red ware, NBPW, grey ware, black-slipped ware and red ware were collected from the villages Saranwan, Diaon, Ahi, Kohadia, Baraini, Bajahan, Majhwa, Godhana and Kachawa. A terracotta male head, a human figurine and a mother goddess of Kushan period were noticed in villages Diaon and Bajaha, besides, a stone sculpture each of Kushan period found in villages Jamua and Majhwa.

In village Larwak exists an intact stone temple of about twelfth century AD. This temple is of Nagara style and is important for the study of the medieval temple architecture. In plan it is consisting of a *garbha-griha,* an *antarala* and a *mandapa.* It comprises a *vedibandha, jangha bhaga* and *pancharatha Rekha sikhara.* A small inscription in Devnagari script is engraved on the *mandaraka* of the *Udumbara.* A miniature shrine of Vallabhi style is also noticed in village Diaon. The images of Vishnu, Siva-Parvati. Parvati and Ganesa are depicted in the *rathikas* of the *jangha bhaga of this* miniature shrine. On stylistic grounds it appears to be of *circa* ninth century AD.

Apart from the above, a number of images of Saivite, Vaishnavite, Sakta, Surya and Ganapatya sects were also noticed. A list of the villages comprising archaeological sites along with their brief description is given below.

| *Villages* | *Nature of remains* |
|---|---|
| Ahi | Grey ware, black-slipped ware, red ware of historical period |
| Anantpur | Brahamanical sculpture of medieval period |
| Bajahan | Red ware (Kushan to medieval period), terracotta human figurine and mother goddess of Kushan period, medieval Brahamanical image and architectural members |
| Banapur | Brahmanical images and architectural members of medieval period |
| Baraini | NBPW, black-slipped ware, red ware, temple remains and sculptures of medieval period, nine miniature shrines of Nagara style with Latina *sikhara* of ninth-tenth century AD |
| Diaon | NBPW, grey ware, black-slipped ware, and red ware, a miniature shrine of Valabhi style and other architectural members of early medieval period, a terracotta Kushan head, carved bricks (Gupta period). |
| Dunai | Brahmanical sculptures of medieval period |
| **Godhana** | Red ware (Kushan to medieval period), Brahmanical sculptures |
| **Hardara** | **Red ware** (medieval) and Brahmanical sculptures |
| **Jalalpur** | **Brahmanical sculptures and architectural members of medieval period** |
| **Jamua** | **Kushan and medieval Brahmanical sculptures, a decorated stone pillar** |

| *Villages* | *Nature of remains* |
|---|---|
| Kachwa | Medieval red ware and sculptures |
| Kohadia | NBPW, black-slipped ware, red ware, medieval Brahmanical sculptures |
| Larwak | Red ware (medieval), a temple of Nagara style *of circa* twelfth century AD along with a small inscription in Devnagari script |
| Majhwa | Brahmanical sculptures and architectural members of medieval period, brick platform consisting of carved bricks |
| Maitai | Brahmanical sculptures and architectural members of medieval period |
| Padari | Red ware of Gupta to medieval period, medieval Brahmanical sculptures and architectural members |
| Saranwan | NBPW, grey ware, black-slipped ware, black-and-red ware, red ware, medieval Brahmanical sculptures, a miniature shrine of Nagara style, belonging to *c.* tenth century AD |
| Semari | Black ware and red ware (medieval), medieval Brahmanical sculptures and architectural members placed on a brick-platform of about ninth century AD |
| Tiwaripur | Red ware (medieval) |

61. EXCAVATION AT MADARPUR, DISTRICT MORADABAD

Excavation at Madarpur (78° 48'N and 29° 12' 38"E) was conducted by the Agra Circle, of the Survey, under the direction of D.V. Sharma, assisted by Arakhita Pradhan, V.N. Prabhakar, Atul Bhargava, Chiranji Lai, and Y.P. Agrawal. It is noteworthy to mention here that thirty-one copper anthropomorphic figures were discovered from this site located near a brick kiln in Madarpur village in the month of January, 2000. The objectives of the excavation at the site were: (a) to know the associated material culture of the copper hoards if any, (b) to know the cultural sequence and settlement pattern of the site. Before layout of trenches, the site was thoroughly explored and studied. The surface exploration indicated concentration of pottery at northwestern portion of the site and around the find spot of copper hoard. The area towards west and south-west of find spot containing archaeological deposit was already found disturbed due to brick manufacturing activities even upto the natural soil. The excavation was mainly concentrated in the

area near find spot measuring 20 m x 20 m. The Trenches *ZA6* Qd 2, ZE2 Qd 2, A6 Qd 4, and Al Qd 1 were laid within a radius of 120 meters from the find spot towards south-east, east and north-east direction (fig. 17). Trench Y J l'Qds 2 and 3 was laid to ascertain a total height of the original site.

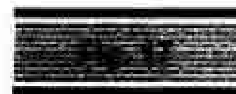
The excavation revealed a single culture site and total ochre coloured pottery (OCP) deposit measuring 35-48 cm. The OCP was found here with maximum habitational deposit of 48 cm above the natural soil. A sterile soil deposit of more than 1.8 m thick was found over the habitational deposit, which is a striking feature at Madarpur. This is somewhat an interesting phenomenon, also observed in various other sites associated with OCP. This soil deposit on OCP habitation is entirely different in colour and composition. This suggest more activities of flood on OCP settlements at least on two or three occasions.

Trench YJ1 Qds 2 and 3 revealed a deposit of 2.3 m upto the natural soil. Here more than 1.8 m sterile soil deposit was revealed from the excavation. The composition of layer (1) is sand and'silt deposit of 45 cm thickness and brownish in colour. Layer (2) measures 28 cm thickness, compact in nature and containing clay-deposit with blackish colour. Layer (3) is again silt deposit measuring 64 cm, loose in composition with brownish colour. Layer (4) is yellowish brown in colour and compact in hardness with a deposit of 21 cm. Layer (5) was blackish in colour and compact in composition having thickness of 34 cm. Pottery and antiquity were not available in layers (1) to (5). This suggests some kind of flood activity at the site. Layer (6) with a deposit ranging from 33-38 cm thickness, comparatively less compact in nature with yellowish brown colour yielded sherds of OCP above the natural soil (fig. 18).

The Trench XG 1 was laid in the area including find spot measuring 10 x 1 0 m square. No copper object in adjoining area to the find spot was found *in situ* during excavation. Although, OCP and its associated coarse red ware were available from the level contemporary to the copper hoard. The above fact is confirmed from the digging at the area in Qds 2 and 3 of XG 1. Layers (1) and (2) of both these quadrants also contained 18 cm sterile deposit of soil. Obviously, OCP was not available there. Layers (3) and (4) with a thickness of 41 cm yielded OCP, its associated red ware and antiquities (fig. 19). A mud floor was noticed in this trench along with neck portion of a vase with flared rim which was also found lying over it. The percentage of pottery is comparatively higher in this quadrant and suggests that probably this area was densely inhabited by OCP users. Besides this, fragments of stone pestles were also found from these quadrants. One more significant discovery from this level is the evidence of charcoal sample in good quantity.

The remaining available area of the square in above cited Qd 4 was completely disturbed. The soil composition of layer (3) is compact in nature and of yellowish brown colour with light reddish spots. While layer (4) is comparatively less compact than layer (3) with yellowish brown colour.

In Qds 3 and 4 of Sq XF 1, four layers upto the depth of 82 cm were excavated. The total thickness of layers (1) and (2) is 37 cm. Layer (1) is yellowish brown in colour and comparatively less compact with soil composition of clay, silt and sand. There is total sterile deposit in both these



**CONTOUR PLAN OF OCP SITE AT MADARPUR, TEHSIL THAKURDWARA, DISTRICT - MORADABAD (YEAR : 2000-2001)**

20 0 20 40 60 80 METRES

SUGARCANE CROP

SUGARCANE CROP

KACHCHA RASTA

BRICK KILN

FROM SURJAN NAGAR

ROAD

TO THAKURDWARA

TO MADARPUR

NALA

INDIA

DELHI

MORADABAD

MADARPUR

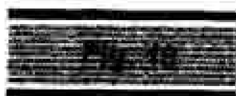
MUMBAI

KOLKATA

CHENNAI

ARABIAN SEA

BAY OF BENGAL



## MADARPUR, (2000-01)

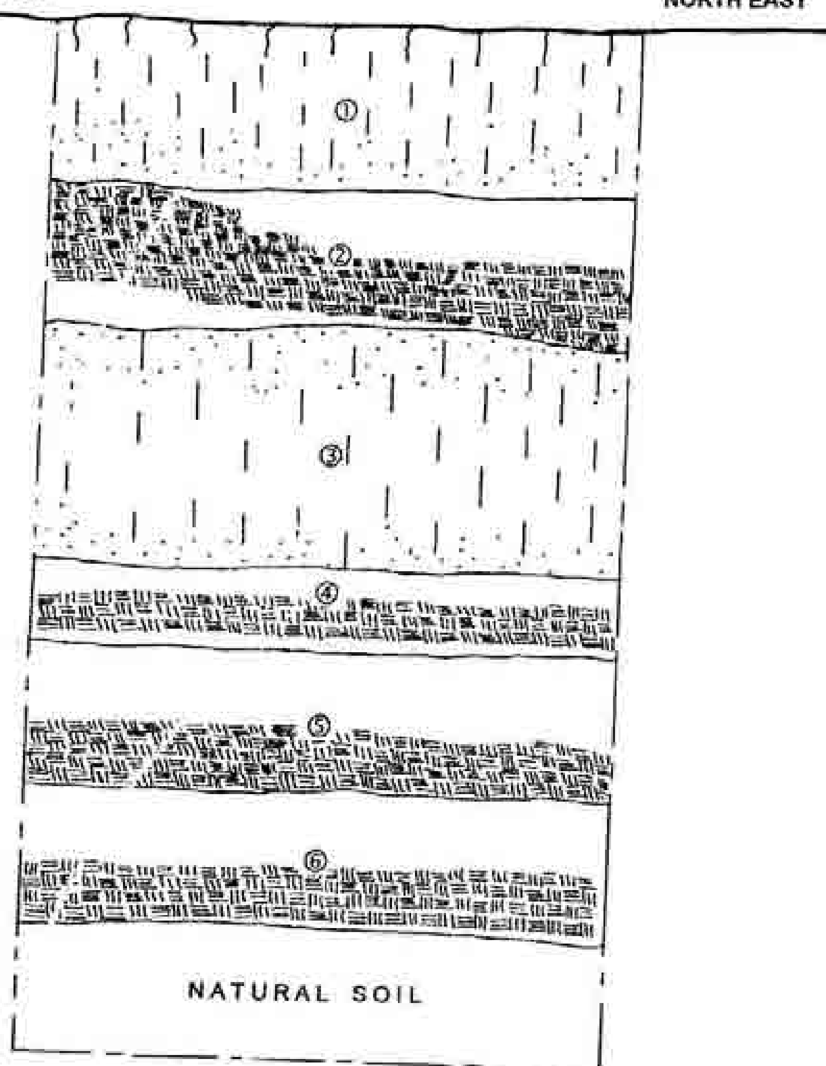
SECTION FACING SOUTH - EAST

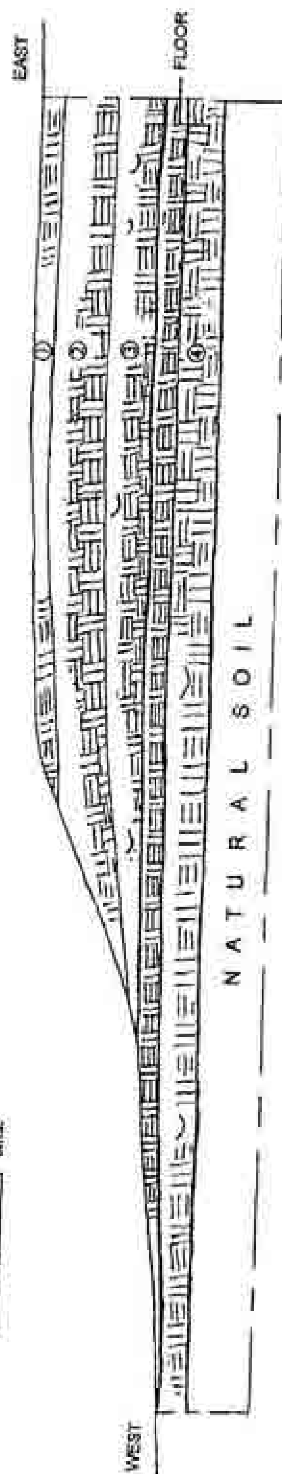
SQ. YJ - 1 QD. 2 & 3

25 0 25 cms.

SOUTH WEST

NORTH EAST




MADARPUR (2000-01)
SECTION FACING SOUTH
SQ. XG - 1 QD. 2
25
0
25
cms.
EAST
WEST
FLOOR
1
2
3
4
NATURAL SOIL

layers. The layers (1) and (2) were broadly differentiated on the basis of colour and soil composition. The soil of layer (2) is more compact in nature, blackish grey in colour and mixed with black *kankars.* Obviously, there is no pottery in both these layers. Layer (3) is of yellowish brown colour mixed with red spots, compact in hardness and a thickness of 8 cm. This soil contained more percentage of clay while silt percentage is comparatively less in it. The percentage of pottery is fairly good in this layer and few brickbats were also found from these levels. The *kankars* of black colour were also found in this layer. The ochre coloured and its associated coarse red ware were found from this level. The total thickness of layer (4) is 40 cm. The composition of layer (4) is of light yellowish brown colour and comparatively less compact in nature. The ochre and associated red ware, three stone fragments probably of pestles and one fragment of terracotta sling-ball were found from this layer. The black *kankars* were also found deposited in this layer. The total thickness of habitational deposit in Sq XF 1 is 48 cm. The significant discovery from layer (3) of this square is a terracotta toy-cart frame, which is described later.

The stratigraphical position in all four quadrants of above square is similar. The percentage of pottery is higher in layer (4) in comparison to layer (3).

The nature of soil composition and colour of layers in four quadrants of Sq YG lis more or less similar to XF 1. Layer (1) of all the four quadrants has more or less a thickness of 7 to 8 cm with yellowish brown colour and compact in hardness. A few black *kankars* were also found mixed in this layer. Similarly, layer (2) is blackish in colour and compact in hardness with 12 cm in thickness. This layer also has black *kankars.* Both the above layers has sterile soil deposit. The thickness of layer (3) is 13 cm. It is yellowish brown with reddish spots and compact in hardness. The ochre coloured and its associated red ware, fragments of stone pestles and one broken terracotta wheel were found from this level. The thickness of habitational deposit in layer (4) is 27 cm. The nature of the soil is comparatively less compact with yellowish brown colour having greyish tone. The *kankars* of black colour were also found deposited in this level. The OCP and its associated red ware, fragment of a terracotta wheel, fragments of stone pestle, brick-bats, charcoal, charred seed and evidence of oval-shaped hearth were found from this level. The important pottery such as miniature pot, *lota* and a vase having flared rim with long neck are noteworthy from this level. The *lota* was found lying near hearth, which suggests that this area was probably in use as a kitchen The total habitational deposit of OCP in layers (3) and (4) was 40 cm and stratigraphically similar to the above mentioned squares.

The excavation of four quadrants in Sq YF 1 revealed more or less similar strata as found in above squares. The maximum thickness of layer (1) was 13 cm, which comprises yellowish brown colour and compact in hardness. The colour composition of layer (2) is blackish, compact in hardness containing a few black colour *kankars.* The maximum thickness of this layer is 37 cm. Stratigraphically, there is evidence of watermarks observed in layers (1) and (2). A slight slope towards northern direction was marked in both these layers. The maximum thickness of sterile soil deposit in layers (1) and (2) is 50 cm. The maximum thickness of layer (3) is 7 cm, yellowish brown colour and compact in hardness

containing black *kankars*. The OCP and its associated coarse red ware were found from this layer. The important antiquity from this layer is fragment of a stone pestle. The layer (4) has greyish tone with yellowish brown colour, comparatively less compact in hardness and containing black coloured *kankars.* The maximum thickness of this layer is 27 cm. There is a slope of 14 cm in this layer as discussed above. Besides OCP and its associated coarse red ware, important finds from this level is in the form of ash from a burnt-place, charcoal, chunks of burnt-clay, fragments of stone pestles, miniature pot with coating of ochre colour which is clearly visible on plan. A potsherd of OCP with three perforations, base portion of a pot with engraved 'tectiform' design on its base, base portion of a pot (probably goblet) depicting design in bas-relief, a potsherd with graffiti mark on inner side of a pot, a fragment of a terracotta toycart wheel with a hole in the centre are some of the significant discoveries from this level.

Apart from the above quadrants, Sq Al Qd I, ZA 6 Qd 2, ZE 2 Qd 2, A6 Qd 4, YHI Qds 2 and 3 were also taken up for excavation.

Five layers of Sq Al Qdl were excavated upto the depth of 123 cm. Layers (1) to (3) are sterile deposit of 57 cm. The thickness of layer (4) is 10 cm, yellowish brown in colour and comparatively less compact in composition. In this layer black *kankar* and white calcareous nodules were also found deposited. Except a rim portion of bowl, no other pottery types were found from these quadrants and the percentage of pottery was comparatively small in number. The layer (5) is 32 cm thick, light greyish in colour and comparatively less compact in composition. The black *kankars* and white calcareous nodules were also found deposited in this level. The percentage of pottery is higher in this layer in comparison to layer (4). A small piece probably of river shell is an interesting find which was discovered from layer (4) at a depth of 85 cm.

ZA6 Qd2 was excavated upto a depth of 123 cm. From layers (1) to (4) a sterile deposit of 81 cm was noticed. The colour of layer (1) is brownish mixed with greyish patches and loose in nature. This is a washed deposit and unreliable soil for stratigraphical purpose. Layer (2) is yellowish brown in colour and compact in hardness containing black *kankars.* Layer (3) is of blackish colour and compact in nature also containing black *kankars.* Layer (4) is of yellowish brown colour with reddish spot, mixed with black *kankars* and compact in hardness. Layer (5) is 40 cm thick, yellowish brown in colour, compact in nature and contains *kankars* of black and white colour. Layer (6) is 22 cm thick, light greyish in colour and less compact in nature with black and white *kankars* too. Layers (5) and (6) are habitational strata. The sherds of ochre and associated coarse red ware were found from this level. ZE2 Qd2 was excavated upto a depth of 183 cm. From layers (1) to (5) is a sterile soil deposit. Layer (1) is 11 cm thick, yellowish brown in colour, compact in nature containing black *kankars.* Layer (2) is 36 cm thick, blackish in colour, compact in nature with black *kankars*. Layer (3) is 35 cm thick, yellowish brown in colour, less compact in comparison to layer (2) and contains black *kankars*. Layer (4) is 37 cm thick, blackish in colour, compact in nature and containing white calcareous *kankars* and black *kankars* too. Layer (5) is 32 cm thick, yellowish brown in colour, compact in nature, contains black *kankars* and

white calcareous nodules. Layer (6) is 31 cm thick, blackish in colour, compact in hardness and contains comparatively large quantity of white calcareous *kankars* and black *kankars* are less. Twenty sherds of OCP were found from this level. A6 Qd4 was excavated upto a depth of 70 cm from layers (1) to (4). Layers (1) to (3) are sterile soil deposit. Layer (1) is 8 cm thick, yellowish brown in colour, less compact in nature and contains black *kankars*. Layer (2) is 22 cm thick, blackish in colour, compact in nature and also contains black *kankars*. Layer (3) is 12 cm thick, yellowish brown with reddish spot in colour, compact in nature and contains black *kankars*. The nature and colour composition of this layer is similar to layer (3) of XFI, XOI, YOI and YFI. All the above trenches contain high percentage of ochre coloured pottery from layer (3) which was not found in layer (3) of A6 Qd4. Layer (4) is 20 cm thick, light yellowish brown in colour, less compact in nature and contains black *kankars*. The ochre coloured pottery and its associated coarse red ware are available from this level but in lesser quantity.

YH I Qds 2 and 3 were excavated from layers (1) to (4) upto a depth of 73 cm. Layer (1) is 10 cm thick, yellowish brown in colour, compact in nature, contains black *kankars*. Layer (2) is 20 cm thick, blackish in colour, compact in hardness and also contains black *kankars*. Layer (3) is 8 cm thick, yellowish brown in colour, compact in nature and contains black *kankars*. This layer (3) yielded ochre coloured pottery, fragment of a stone pestle and fragment of a toycart wheel. Layer (4) is 35 cm thick, yellowish brown in colour, comparatively less compact in nature and mixed with black *kankars*. This layer (4) yielded ochre pottery and its associated coarse red wares. Layers (1) and (2) upto 30 cm is sterile soil deposit while layers (3) and (4) are habitational strata.

As mentioned above, excavation in Sq YJ I was undertaken with a view to determining the maximum height of the mound. As revealed from the excavation in YJ I Qds 2 and 3, 2.3 m is the maximum height of the mound. Total six layers were exposed upto the natural soil. On the basis of data available from Sq XG I, Sq XF I, Sq YG I, Sq YF I, YH I, Qds 2 and 3, Al Qd 1, ZA6 Qd 2, ZE2 Qd 2, A6 Qd 4 and YJ I Qds 2 and 3 it is evident that total habitational area at the site was approximately 140 m from east-to-west and 120 m wide towards north-south. The maximum thickness of cultural deposit at Madarpur is 48 cm. An oval shaped open hearth measuring 40 cm diameter was found in YG 1 Qd 2. The hearth contains ash and charcoal in good quantity. Baked clay chunks in brown colour were found lying nearby. A complete *lota* was found lying near this hearth at a distance of 0.6 m. Apart from this, rim portion of some pots were found *in situ* close to this hearth. The evidence of a large size shallow pit, cut into natural soil was found to the north-west of hearth at a distance of approximately 1.25 m. This oval pit measures 2.35 m from north-to-south and 2.4 m from east-to-west. The OCP and its associated coarse red ware potsherds were found in large number along with a partly broken miniature pot which is very fragile.

All these would suggest that this complex of the settlement was used perhaps as a kitchen for cooking and disposal of waste material. One more evidence which was carefully recorded during the excavation is that of a place used for open site for burning. The ash was found *in situ*. A few potsherds were also found lying nearby. To the

north-west, another pit measuring approximately 1.65 m x 1.50 m in diameter was found cut into the natural soil in Trench YF I Qds 1 and 4 near the above mentioned site. This pit contains broken potsherds comparatively in lesser quantity. Such evidences and remains of activity of human beings concentrated at a particular place further suggest that this complex was used mainly for human habitation at Madarpur.

The Trench XG 1 Qd 2 revealed evidence of mud-floor. A flared rim portion of a vase with long neck and partly broken pieces of coarse red ware pots in different colour were found lying on the floor level. A post-hole measuring 9 cm in diameter is visible on plan near the vase portion. Two more post-holes measuring 7.5 cm and 7.0 cm in diameter were also found in its vicinity. The distance between the two post-holes is 20 cm and 16 cm respectively. A few evidence of post-holes on plan and discovery of brickbats from the site suggest construction of any kind of structure in mud or wattle-and-daub with thatched roof.

Out of forty-five antiquities, four fragments of terracotta toycart-wheels of various sizes were found in different trenches with only one fragment of terracotta toycart-frame and one wheel contain holes to put them in use with the help of wooden axle. The frame is made of a well levigated clay, adequately fired, having smooth surface and fine texture. It has holes, two horizontal and three vertical and measures 6.2 cm x 3.9 cm x 3.3 cm. Among fragments of terracotta toycart wheels, the bigger one measures 13 cm in diameter and has a hole in the centre and the smaller is 8 cm in diameter. Both the fragments are made of fine clay, well fired with smooth surface and texture with thick cores at the centre and thin towards the edge. The two other pieces of wheels are also partly broken and measures between 9 cm to 12 cm approximately in diameter. Both these fragments are also baked adequately with the fine texture and smooth surface.

A partly broken piece of a sling ball (3 cm dia) is the only example from Madarpur excavation. It is also well fired with smooth surface.

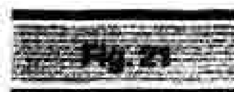
One broken piece of goblet (?) base has graffitti marks in bas-relief. Another piece of a bowl has incised graffitti marks at bottom portion. These marks give impression akin to the Harappan script. But this is purely a hypothesis in the absence of a definite evidence. The last specimen of potsherd has also incised graffitti mark inside.

There were total thirty-seven stone objects of different shape and size found during excavation. Out of these twenty-seven are broken fragments of stone pestles. The remaining pieces of stone are also probably different parts of grinders and pestles. The used portion of pestles, in some cases, has become very smooth and properly grounded. These stone objects are of grey and white colours and made of granite and quartzite.

The ceramic industry at Madarpur mainly comprised OCP and its associated coarse red ware. The pottery is basically wheel turned. But in case of a knobbed-lid applique technique was used. The OCP sherds are made of well-levigated clay, fine fabric and smooth core. The pottery was fired adequately. The ochre colour wash over OCP has tendency to peel off easily. Four sherds have incised decoration with geometrical designs in criss-cross pattern and oblique lines on the



*Madarpur, Ochre Coloured Pottery shapes : jars, vases and miniature pots*

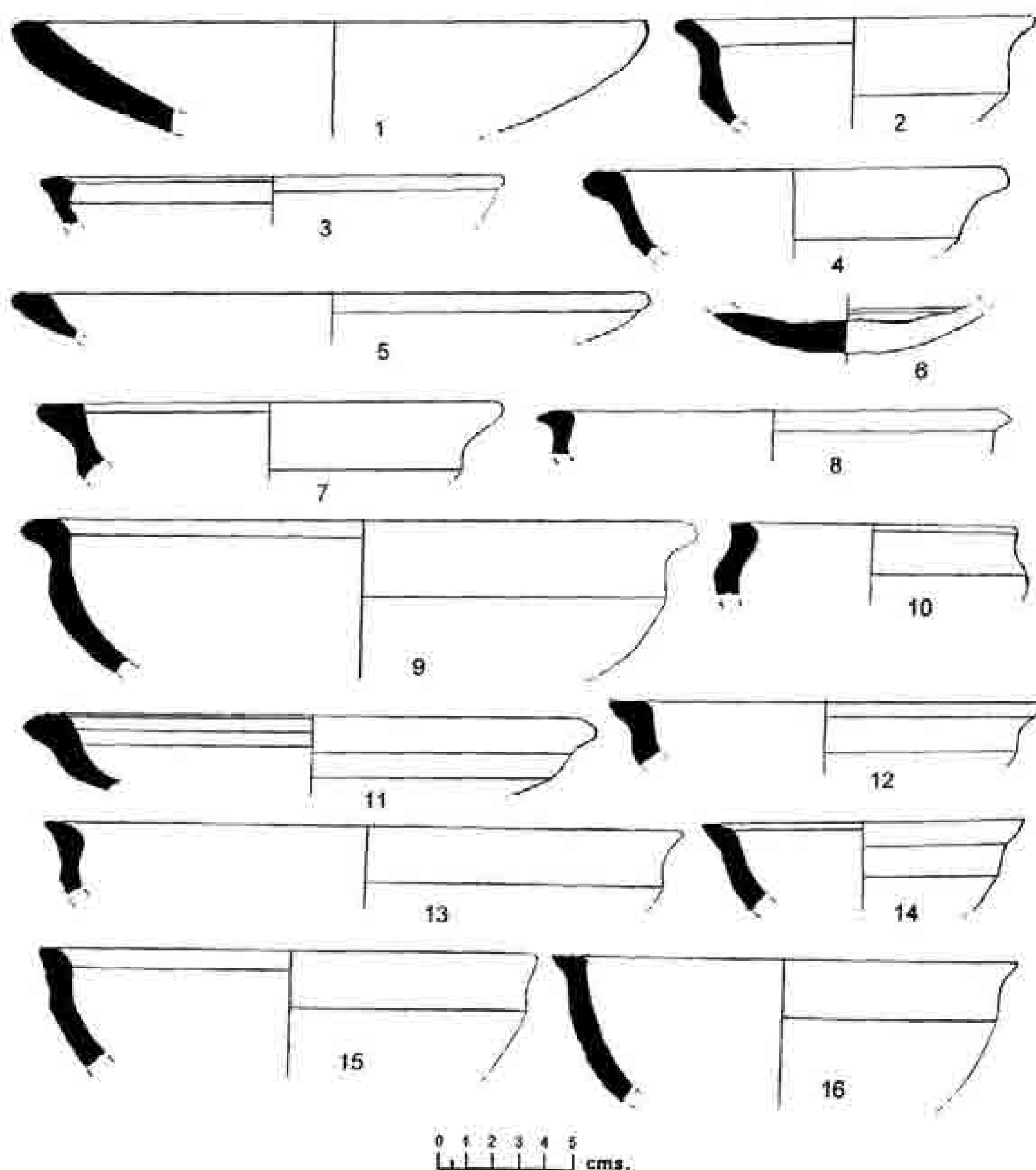






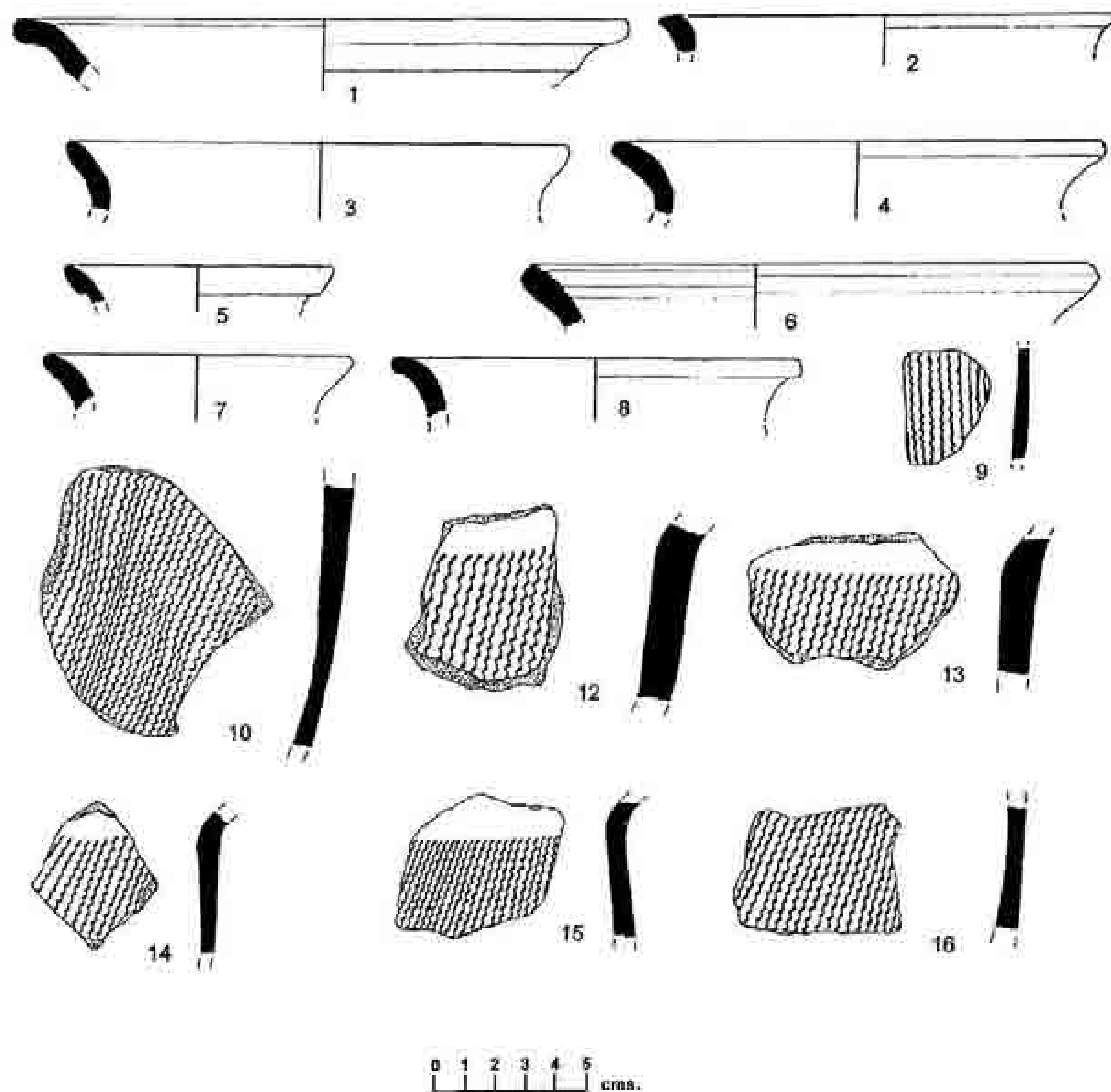
*Madarpur, Ochre Coloured Pottery shapes : bowls and dishes*

Fig 22




*Madarpur, Ochre Coloured Pottery shapes : bowls and dishes*

Fig. 23




*Madarpur, pottery shapes & decorative motifs of associated red ware of OCP*

exterior. The associated coarse red ware of OCP is sturdy in nature with coarse fabric and medium-to-thick core. Sand was also used and found mixed with clay for preparation of this pottery. Cord impressed designs are visible on the exterior portion of the pottery. The important shape in OCP pottery includes dish, bowl, basin, *handi,* vase, storage-jar, miniature pot, *lota,* lid, bowl with ring-base and dish-on-stand (figs. 20-22). Two noteworthy potsherds of OCP bear perforations. Both these potsherds resemble the Harappan pottery (perforated jars) and this type of pottery with perforations was not known so far from any OCP site. Large number of rim portion of vases with flared rims and S-shaped neck were found at the site. Some bowls have featureless rim, out-turned rim and have carinated body with convex side. The important shapes in associated coarse red ware include vase, dish, bowl, *handi* and jar (fig. 23)

Although no copper object was recovered from the excavation, it appears that the copper hoard discovered may be contemporary with the OCP level on the basis of contextual evidence! The result of C-14 dating and palaeo-botanical analysis will certainly throw ample light for studying the copper hoards in India.

### 62. Excavation at Mandi, District Muzaffarnagar

Trial-excavation at Mandi was carried out under the direction of R.S. Bisht, assisted by R.K. Verma and Vishnukant of the Directorate office, and Arakhita Pradhan of the Agra Circle, of the Survey. A hoard of Harappan gold jewellery was reported from the site. The site was found to be highly disturbed partly due to ongoing levelling operations of the field and also due to the haphazard digging of the find spot for retrieval of gold jewellery by the local villagers. The gold jewellery recovered from the site comprised thin disc beads of various sizes with spacers, conical beads etc. besides some other antiquities like beads of banded agate, micro and cylindrical beads in steatite and faience and some broken silver pieces.

The excavation brought to light a kiln, though highly disturbed, is horseshoe-shaped and measures 127 cm x 84 cm x 80 cm (length x breath x height). A burnt-brick structure was also partially exposed. The sizes of the bricks of the structure are 36 cm x 22 cm x 10 cm.

### 63. Excavation at Sravasti, District Sravasti

To impart field training to the students of the Institute of Archaeology and in continuation of the earlier excavations, the Excavation Branch-Ill, Patna, of the Survey, conducted excavation at Maheth mound at Sravasti, under the direction of G.C. Chauley, assisted by B. Nath, D.K. Ambastha, D.K. Singh, N.K. Sinha, S. Nayan, J.K. Tiwari, O.P. Pandey and S.P. Gupta.

The excavation work was resumed about 100 m inside the Khandbhari Gate with the following objectives : i) to trace the extension of ancient road at Khandbhari Gate (a road partly exposed during 1997-99) towards the fortified city of Maheth as also ii) to ascertain the structures of various periods buried underneath and elevated in both the sides of the ancient road, close to the main gateway at Khandbhari Gate.

The excavated area could be divided into two groups on the basis of exposed structures such as - Residential area and Temple area.

In Residential area, the exposed structural

Plates 90-91



90



91

*Sravasti:* 90, *remains of double mouthed hearth* and 91, *ring-well with structures*

activities could be grouped in the following periods:

The ceramic industries of Period I : pre Mauryan and Mauryan is marked by the red ware, grey ware, black ware, black painted red ware and NBPW. The black painted red ware may be compared with those found from Hastinapura, Kausambi, Pataliputra, Vaishali and Piprahwa. No structural activities could be traced but a few large sized bricks (42x35x10 cm) were found from Trench YC-17. In Trench YE-16 two double-mouthed ovens (pl.90) were traced at a depth of 3m. It appears like a bowl with a common channel either used for ritual or for bead making. The orientation of these ovens are south-east to north-west and north-east to south-west with the exposed lengths of 1.6 and 1.35m respectively.

Most important discovery of this period is a 9m long, 8.3m wide ancient road made by ramming brick jelly, brick powder and tiny potsherds mixed with lime, molasses and gum etc. This road was encountered in Trench ZB-17at a depth of 2.35m. Different phases of repairs of this road was also observed. It seems that the road acted as main thoroughfare which is originating from the Kandbhari Gate connecting to Naushahara Gate. The discovery of Kiln in Trench YA-16 testified the fact that it was used for preparation of lime which possibly necessitated for road making. The bricks (42x3 5x10cm) were used for constructing the kiln of Mauryan origin.

In Trench YA-16 one burnt-brick well was exposed. Of the well total thirty-one courses of bricks were traced measuring a height of 2.4m. The dia and the other details of this well could not be measured as structures of later period are raised over it.

In Trench YC-17 a ring well was found at a depth of 1.7m. The shape of this ring well is different from the general ring wells. The topmost portion of this ring well is fashioned in the form of a huge *ghata.* It is having altogether nine rings with a diameter of 70 cm and the height of 1.8m.

The pottery of Period II (Sunga-Kushan) are classified as red ware, grey ware and black ware and a few sherds of degenerated NBPW. Red ware is more in percentage. Exposed structures of this period do not form any regular plan of either religious or secular structure due to large-scale vandalism by brick robbing and haphazard construction of subsequent period.

In Trench YD-15 only a corner of a room was exposed which is 81cm in height with twelve courses of bricks and a thickness of 60cm. The rest of the portion of this room was damaged by the brick robbers of later period. In Trench YE-16 corner of a room was found, 60cm wide and 43cm in height with nine courses of intact bricks. In the south-east corner of Trench YE-17 the remains of a room were found but only small portion is visible with a height of 78cm. The southern extension of this wall is traced within Trench YE-16. The total length of this wall is about 5m. In Trench YE-17 a part of the room was also found with five courses of bricks and a height of 30cm (pls. 92-93).

The remains of some scattered brick walls of uniform width i.e., 32cm were traced in the Trench YD-17. Probably they are the portion of one complex but these walls were found in a very rudimentary form. In Trench YB-16 the remains of two parallel walls forming a passage was

Plates 92-93



92



93

*Sravasti: 92-93, view of house-complex, Kushan period*

Plates 94-95



94



95

*Sravasti:* 94, *ring-well with structures, Kushan period* and 95, *remains of drain, Gupta period*

exposed, which was blocked later on by a wall of 16cm high with three courses of bricks, but both the eastern and western walls are having four courses with a 27 cm height. Corner portion of a room was exposed in Trench YA-17, having three courses of bricks and 20cm in height. In Trench YD-16 one ring-well was found with thirty-one rings and a height of 3.5m which has a diameter of 65cm. Another ring-well was exposed in Trench YB-15 with seventeen rings. The diameter of this ring-well is 70cm with a height of 1.77m.

Two more ring-wells exposed in Trenches YD-16 and YB-15, could be assignable to this period (pl. 94).

Period III (Gupta and post-Gupta) yielded sherds of red ware, grey ware and black ware in which red ware is dominant. A good number of brick structures belonging to this period were exposed just below the humus. Most of the structures represent the residential-complex and are secular in nature, directly built over the remains of Period II. The intact bricks are used only on the edges of the wall whereas for the core portion brickbats were used exclusively.

In Trench YE-17, the remains of a house-complex was traced having three rooms and three passages. The sizes of these rooms are 2.10x2.10m, 1.60x1.80m, 1.60x2.25m. Two of these rooms are separated by a passage. The remaining part of this complex is under the unexposed area.

Second house-complex in Trenches YD-17, YD-16 and YC-17 has a brick-paved courtyard of 4.20mx8.10m dimension in almost in the centre of the complex. Except northern portion all other three sides of this courtyard is flanked by a series of rooms. The remains of a broken storage-jar was also found kept on the brick-paved courtyard. A brick-paved drain was also encountered at the southwestern corner of the courtyard (pl.95). The sizes of the room on the eastern side of the courtyard are 2.35mx3.30rn and 2.35mx2.35m whereas the rooms of western sides are 1.70mx2.45m and 1.70mx2.80m. The rooms on the southern side measures 1.60mx2.80m, 2.50mx2.80m and, 3.60mx2.80m.

There are some other stray brick walls found in Trenches YA-17, YB-17 and YB-16, the portions which were either robbed off or damaged.

The remains of a rectangular courtyard covering an area of 8.40m in north-south direction was also exposed in Trenches YC-15 and YC-16. A 2.50m long brick drain was exposed in Trench YB-15 adjoining this courtyard to facilitate the waste water to go out.

Another house-complex exposed in Trench YE-11 with remains of at least, five small rooms were found besides several other brick walls in different trenches without confirming to any exact plan.

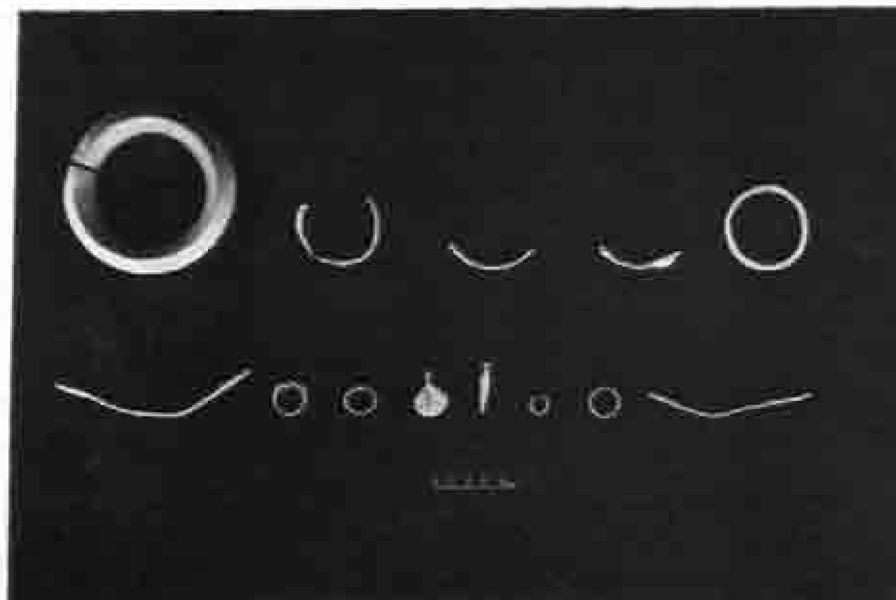
Two brick wells and one ring-well might belong to this period. The brick wells were exposed in Trenches YA-16 and YA-17 and the ring-well in Trench YA-16. Wedge-shaped bricks were used in brick-well. Unique feature noticed in the brick well was that of a square *jagati* of the well with circular lower portion.

The temple area, about 200m north-west of Kandbhari Gate inside the fortified city of Maheth, is comparatively more elevated than its surroundings. Eight trenches measuring 10 x 10m were laid to trace the buried structures underneath.

Plates 96-97



96



97

*Sravasti:* 96, *general view of excavated panchayatana temple* and 97, *copper objects, Gupta period*

Plates 98-99



98



99

*Sravasti: 98, mother and child, terracotta, Gupta period* and *99, lady with conches, terracotta, Kushan period*

Plates 100-101



100



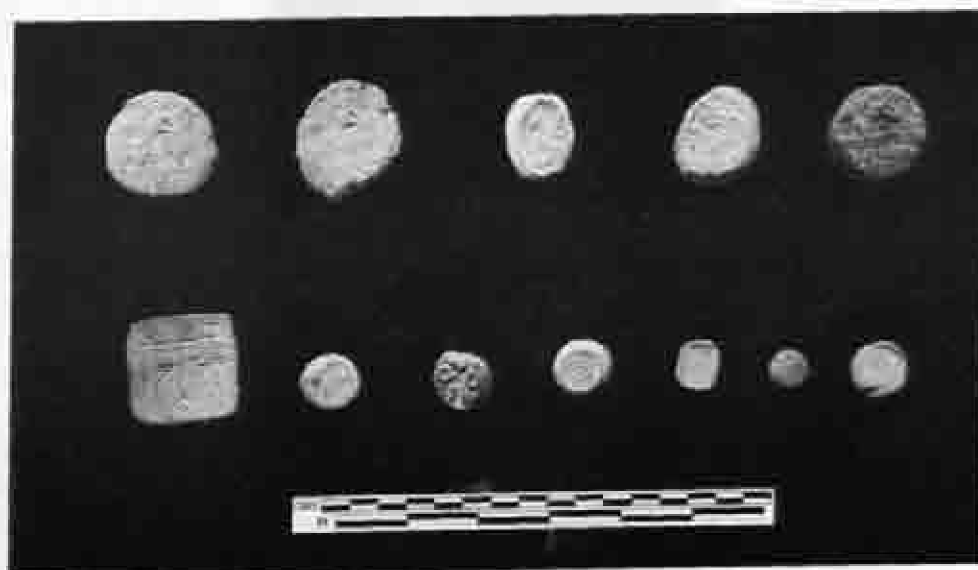
101

*Sravasti:* 100, *Siva aspect of pasupati, terracotta, Kushan period* and 101, *fragmentary figurines in terracotta, Kushan period*

Plates 102-103



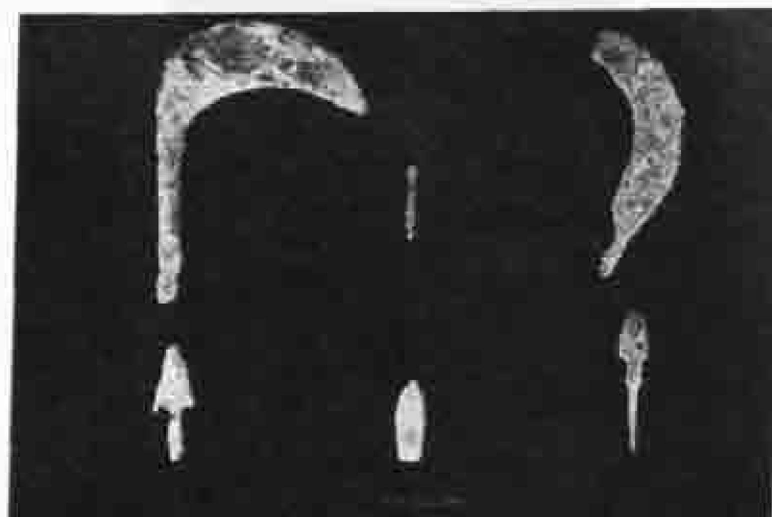
102



103

*Sravasti:* 102, *birds and animals, terracotta, different periods* and 103, *seals and sealings, terracotta, Gupta period*

Plates 104-105



104




105

*Sravasti:* 104, *iron objects, Gupta period* and 105, *plaque showing bust of a lady, Sunga period*

In this area, Period I (Gupta Period) is represented by a brick temple *of panchayatana* type (pl.96), enclosed within a rectangular enclosure wall. The enclosure wall measures 18.50m in east-west direction and 11.30m in north-south direction. The entrance was provided on the east. Typical Gupta moulded bricks were found *in-situ* in this enclosure wall.

The sanctum-sanctorum found in the centre of the enclosure in the form of a brick platform measures 4.40mx4.40m and a height of 1.65m. The main deity might have been placed on this platform. A flight of eight steps was provided from the east of the platform. But the super structures were found completely damaged.

The most remarkable feature of this temple is the evidence, of four small brick platforms at all the four corners, inside the temple premises, attached with the enclosure wall. The shape of these platforms are almost square (2.75x2.75 m) with height varies from 75cm to 1.25m.

Just about 4m north of this temple, outside the enclosure wall, remains of another temple was also discovered in Trench YL-22. The architectural pattern of this temple is very much similar to those mentioned earlier but the temple is smaller in size and devoid of any corner shrine for the consort of the main deity.

This temple consists of a brick platform, measuring 3.20mx3m for placing the image of consort of the main deity. The 93 cm high platform has a 2.60m long projection towards east having a flight of four steps to climb upon the platform. This temple is also having a separate enclosure wall measuring 10.85mx7.50m.

One brick-well was also exposed near the northwestern corner but outside the enclosure wall. This well might have been used by the devotees for pouring water on the presiding deity.

There are some other remains showing partly exposed structures perhaps used as a temple kitchen, and a tank for storage of water.

The temple may be considered as one of the earliest *panchayatana* temples in India.

In Period - II (early medieval period) perhaps, after the collapse of the above temple by earthquake, the gap between the platform of sanctum-sanctorum and enclosure wall, was filled by laying bricks. Now the whole temple-complex was converted into a big brick platform of 18.50mx 11.30m with its entrance (h. 53 cm) composed often courses of bricks on the southern side. The eastern portion of this entrance is badly damaged but the western portion is comparatively intact with four projections.

A total number of one thousand three hundred and seventy-eight antiquities including terracotta, copper (pl.97), stone, glass, iron, bone, ivory, silver, lead, brass and bronze objects were recovered. Terracotta objects include human and animal figurines (pls.98-102), weights, beads, stamps, pendants, skin rubbers, sling-balls, ear-studs, ear-lobes, rattles, toycart, gamesman, hopscotches, seals and sealings (pl. 103). Among the seals and sealings mention may be made of one terracotta sealing depicting a sea voyage. Terracotta seals and sealings were found so far in the excavation, are mostly defaced and blurred. Some sealing bears the *Ujjaini* symbol, animal etc. One sealing shows a deity holding trident in his right hand, seated on *lalitasana* pose, with two lined blurred inscription below. A three-legged

ritual pot in black polished ware was found with some figure speak some ritualistic pose.

Fragments of arrow-heads, spear-heads, dagger, sickles, chisels, razor, ploughshare, fish-hook, ring, needle, scraper, clamp, holder, knife, nails made of iron (pi. 104) were also found. Among the copper objects coins, antimony rods, ring, bangles, pendant are noteworthy. Points and stylus made of bones were also recovered. The ivory objects included fragments of beads and a small pin. Beads and bangles made of glass were found. Majority of coins revealed from the excavations are very much weathered, deformed and corroded. These coins can be grouped as punch marked coins, cast coins and medieval coins. Beads of semiprecious stone and legged quern, plaques (pi. 105), caskets, pendant are the other stone objects. Fragments of reel, bead and spindle of lead, two small bell or *ghungru* of brass and bronze are among the other miscellaneous objects.

64. EXPLORATION IN DISTRICT UNNAO

Ram Vinay of the State Archaeological Department, Government of Uttar Pradesh, under the direction of Rakesh Tewari along with P.K. Singh, conducted village-to-village exploration in Hasanganj Tehsil (Mohan) in District Unnao. During the course of exploration, numerous antiquarian remains were brought to light from the following sites.

| ***Village*** | ***Nature of remains*** |
|---|---|
| Adampur | Red ware, Kushan to post-Gupta period |
| Chakusahri | Medieval stone sculpture of Chamunda devi, brick temple of Siva (c. eighteenth century AD) |
| Chilraula | Grey ware, NBPW, black-slipped ware, red ware, early historical period to post-Gupta period |
| Dhaura | Red ware, Gupta to post-Gupta period |
| Gazaffar Nagar | Brick temple of Siva *(c.* nineteenth century AD) |
| **Hajipur** | Red ware, Gupta to medieval period |
| **Jhalottar** | Red ware, black-slipped ware, grey ware, Sunga-Kushan to **post-Gupta** period |
| **Karaura** | **Red** ware (post-Gupta period), broken *sapta-matrika* panel of **medieval period** |
| **Karauli** | **Red ware of Kushan to medieval period** |
| **Munshiganj** | **Red ware of Gupta to medieval period, stone sculpture—locally known as Golbir-Bada of *c.* fourteenth century AD** |

| Village | Nature of remains |
|---|---|
| Maharajganj | Temple of **red** sand-stone, **devnagari inscription of** *c.* **nineteenth century** AD |
| | Thick red ware, **painted black-on-red, black-and-red ware, PGW, NBPW, black-slipped ware, glazed ware, etc., stem of a dish-on-stand, perforated and footed vessel, and ring based** vessel in **thick red ware are the notable shapes** |
| Nabinagar | **Brick temples of Siva, *c.* eighteenth century AD** |
| Neotini | **Red ware of Gupta and post-Gupta periods, glazed ware** |
| Rasulpur Bakhiya | **Red ware, grey ware, black-slipped ware, Gupta to early medieval period** |
| Shekhpur buzurg | **Stone image of Surya, *c.* twelfth-thirteenth century AD Brick** |
| Tikaitganj | **temple of Siva, *c.* eighteenth century AD Red ware of Kushan-** |
| Unchgaon | **Gupta to medieval period** |
| Vadvadakhera | **Red ware of Gupta to medieval period** |

## WEST BENGAL

65. EXPLORATION IN DISTRICT BANKURA

In continuation of the previous year's *(1999-2000,* p. 198) work, Subrata Chakrabarti, assisted by Banani Bhattacharya, of the Department of Ancient Indian History, Culture and Archaeology of Visva Bharati University, re-explored the area around Manipur (23° 05' N and 87° 00' E), and Chak Dhoyakure (23° 15' N and 87° 27' E) situated in the Kuasuta river valley, northeastern Bankura in West Bengal.

The aim of this season's work was to ascertain the geological context of the archaeological horizons of the scatters of artefacts found as surface find last year at Chakdhoyakure and Manipur and to know the characteristics of Upper Palaeolithic transitional Industry of the area concerned.

At Chak Dhoyakure there are two surface scatters of artefacts located on the left bank of the river and bifurcated by a rain gully discharging into the main stream. The scatter of artefacts that are found on the right bank of the erosional gully is designated as Locality I and the scatter on the left bank of the gully has been designated as Locality II which is situated about 200m north-east of Locality I.

At Locality I a test pit, measuring 2x2m was laid in the northern side of the site. Top horizon consists of Iron Oxide pallets, quartz, quartzite

nodules, fairly cemented having thickness between 1cm - 2cm. This is capped by a heavily carbonized sandy loam dark brown in colour. Below the matrix of iron oxide pallets there occur another horizon consisting of quartz and quartzite nodules, a little darker than the top horizon. This horizon has a depth of 7cm and is sandy and loose in compactness. The sand and nodules show signs of heavy calcification. This horizon incorporates artefacts but not as rich as that of the horizon above.

The Locality II is roughly round in shape. The top surface shows the lateritic pallets, quartz, quartzite nodules, which is highly oxidized. In the northeastern corner of this locality, a patch of medium sized highly oxidized pebbles were noticed and artefacts here were found scattered over the northeastern corner, southern corner and western corner of the locality.

Locality-wise distribution of artefacts at Chakdhoyakure is as under :-

**Table I: Distribution of tool types in two localities of Chak Dhoyakure**

| *Tool types* | *Locality I* | *Locality II* |
|---|---|---|
| Chip | 19 | 11 |
| Core | 8 | 5 |
| Blade | 16 | 11 |
| Scraper | 21 | 14 |
| Borer | 1 | 5 |
| Stumpy nose **borer** | 2 | — |
| **Burin** | 4 | 5 |
| **Arrow-head** | 3 | 6 |
| **Point** | 1 | 2 |
| **Lunate** | 2 | 1 |
| **Awl** | 1 | — |
| **Total** | 78 | 60 |

At Manipur artefacts were found *in situ* in clusters. These are quite fresh and the cluster-wise distribution of artefacts at Manipur are given below:

**Table II : Distribution of tool types in four clusters of Manipur**

| *Tool type* | *Cluster I* | *Cluster II* | *Cluster III* | *Cluster IV* | *Total* | *%* |
|---|---|---|---|---|---|---|
| Blades | 10 | 6 | 11 | 11 | 38 | 22 |
| Arrow-heads | 3 | — | 4 | 1 | 8 | 4 |
| Borers | 1 | 2 | 6 | 5 | 15 | 8 |
| Lunates | 4 | 1 | 3 | 1 | 9 | 5 |
| Points | 1 | — | 5 | 2 | 8 | 4 |
| Break points | 1 | — | — | — | | 1 1 |
| Scrapers | 7 | 2 | 6 | 8 | 23 | 13 |
| Blade-cum-Scraper | — | — | 2 | — | 2 | 1 |
| Awls | 1 | — | 2 | 1 | 4 | 2 |
| Burins | 2 | 1 | 4 | 1 | 8 | 4 |
| Cores | 4 | 2 | 2 | 3 | 11 | 6 |
| Waste materials (including flakes) | 7 | 5 | 24 | 15 | 51 | 30 |
| **Total** | **41** | **19** | **69** | **48** | **178** | |

About 7km downstream from Chak Dhoyakure was discovered a new site in an erosional exposure known as Rohilkhul. The site is located in a depressed valley surrounded by a small hillock covered by a thick *sal* forest. A deep gully run through the erosional surface of the site from north-west to south-east direction. A highly oxide sandy loam covers the chalky sandy gruss material below which lies the chalky bed. The river Kuasuta flows at a distance of 200m north from the site,

The site is a new addition to a transition of Upper Palaeolithic-Mesolithic site from the area, It yielded a rich industry and it is the only site from among the known ones to have utilized varied raw material for the manufacture of the tool.

The industry consist of cores (33), notch (1), scrapers (13), stumpy nose borer (1), triangle (1), beak (1), lunate (1), blades (16), chips (69), raw material pieces (51).

Artefacts are found in two clusters. The cluster-vvise distribution of artefacts is given below :

**Table III : Distribution of tool types in two clusters of Rohilkhul**

| ***Tool** Types* | ***Cluster** I* | *Cluster **II*** |
|---|---|---|
| Chip | 32 | 50 |
| Core | 14 | 9 |
| Blade | 11 | 16 |
| Scraper | 18 | 7 |
| Borer | 2 | 1 |
| Stumpy nose borer | 1 | |
| Burin | 1 | 2 |
| Arrow-head | 4 | 2 |
| Point | 1 | 1 |
| Lunate | 1 | _ |
| Awl | 3 | __ |
| **Total** | **88** | **88** |

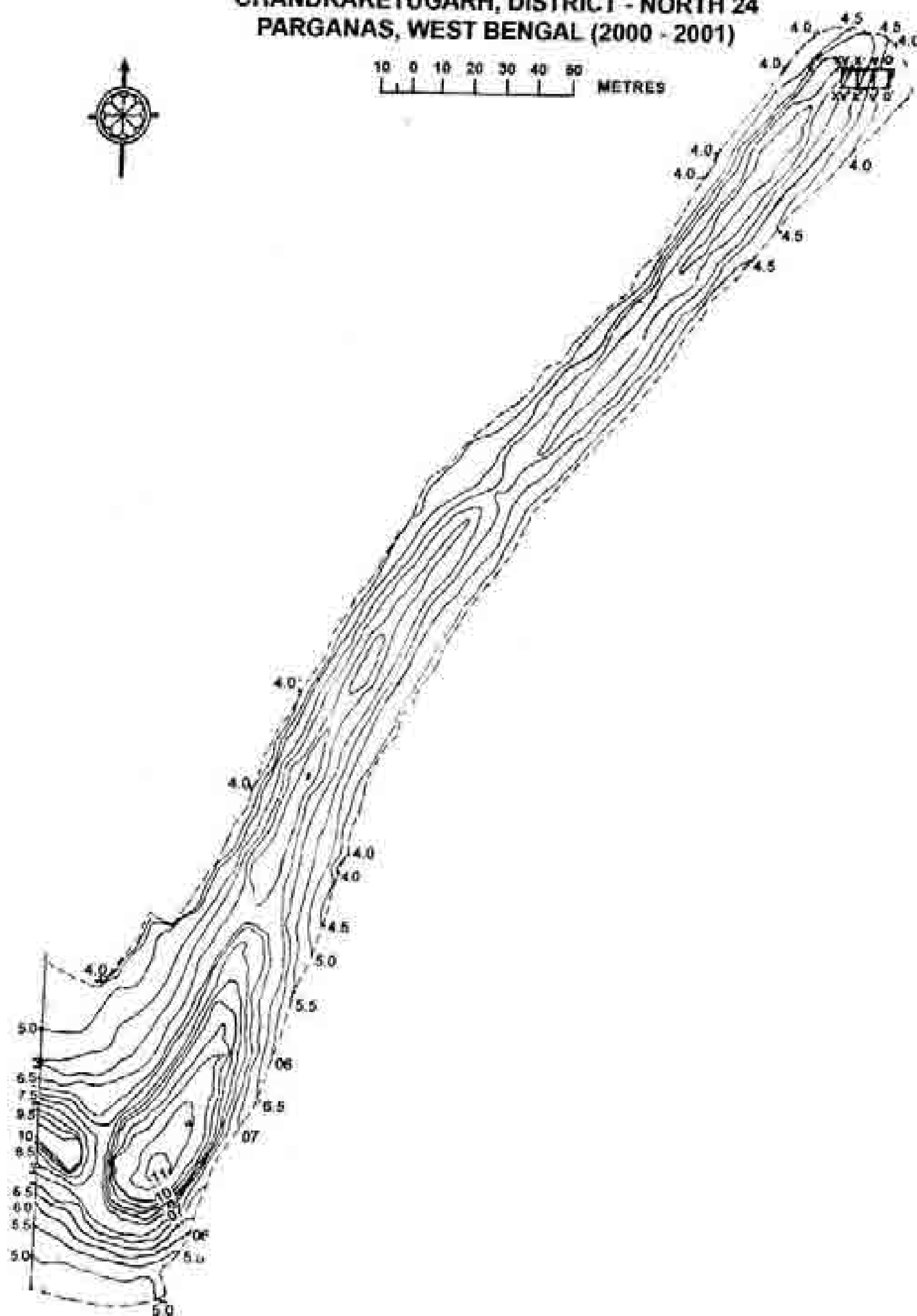
### 66. Exploration in District Barddhaman District

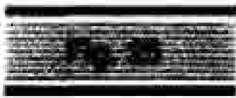
In course of exploration in and around the excavated site of Birbhanpur, S.B. Ota, of the Kolkata Circle, of the Survey, collected a few microlithic tools near the excavated site. Apart from this, a damaged *ate ha la* sandstone temple, located in the village belonging to late medieval period along with one stone image of Surya found in the village datable toe. ninth-tenth century AD.

### 67. Excavation at Chandraketugarh, North 24-Parganas

The Excavation Branch-IV, Bhubaneswar, of the Survey, undertook extensive exploration and excavation at Chandraketugarh under the direction of Bimal Bandyopadhyay, assisted by A.K. Patel, P-K. Dikhit, G.L. Katade, S.K. Dey, S.K. Khuntia, B.B. Badamali, R.N. Sahoo and S.K. Bhoi. The objectives of the exploration were to trace

**CONTOUR PLAN OF EASTERN RAMPART WALL OF CHANDRAKETUGARH, DISTRICT - NORTH 24 PARGANAS, WEST BENGAL (2000 - 2001)**





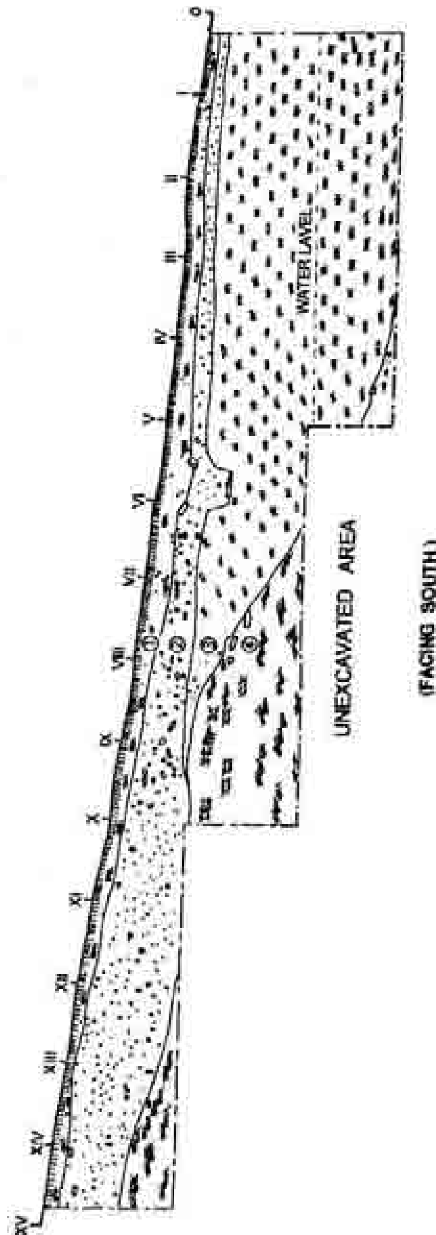

SECTION OF THE EARTHEN RAMPART AREA
EAST SIDE, CHANDRAKETUGARH, NORTH 24 PARGANAS,
WEST BENGAL DURING 2000 - 2001
2 0 2 metres
WATER LAVEL
UNEXCAVATED AREA
(FACING SOUTH)

Plate 106




*Chandraketugarh: bone points*

extension of the fortified habitation and ascertain the antiquarian remains beyond fortification.

Chandraketugarh, with a known historical site at Mauza Hadipur, is situated towards the north-east of Kolkata at a distance of about 37 km. It was a well flourished settlement of early historical period. The traces of the rampart wall around the settlement could be seen in the south of Berer Bil and in the village Berachampa (Debalaya). Exploration revealed that the ancient settlement of Chandraketugarh was roughly rectangular in plan and the villages Nandipara, Kuchemora, Iajpur, Kaukepara and Biramnagar are situated along the elevated rampart wall. River Padma flowing on the north of Chandraketugarh now almost dried up. Other than these, outside the fortification, the antiquarian remains were also extended towards south in the village Berachampa (Ambikanagar), Gllobaria, Hadipur, Singher Ati, Chupri jhara, Diwanati, Gobila, Sanpukur, Jhikra and Mirjjanagar.

Excavation in limited scale was carried out from 1956-57 for some years in selected spots by the Ashutosh Museum, of the University of Kolkata. Further, archaeological finds also proved that the area around Chandraketugarh was the centre of a highly developed and economically advanced society right from the fourth-fifth century BC to the medieval period. As the excavations carried out by the above institution were in small scale, very little was known about the city planning, architecture etc., for which the area excavation was necessary. Besides, rampart area was also to be properly probed. Therefore, the following objectives were taken into consideration for excavation: i) area excavation at Chandraketugarh and adjoining area in Mauza Hadipur, Deulia etc.; ii) to reveal cultural sequence of the site ; iii) to establish relationship between the eastern rampart and the habitational area to find out the period of construction of the rampart; also iv) to know the habitational pattern through the area excavation.

The eastern rampart area of Chandraketugarh was selected at the first instance for excavation (fig. 24). A vertical trench was laid across the rampart towards its eastern edge in east-west orientation. A vertical trench having three sub-divisions, namely O to V, V to X and X to XV was taken up for excavation which revealed on the upper strata some skeletons apparently of recent date. On the lower strata below water level at a depth of about 2.75 m. from surface brick soiling was noticed on the section (fig. 25). Traces of wooden logs were also encountered. Among the antiquities were found bone points (pi. 106), dice, terracotta ball, fragmentary terracotta plaque with an elephant on it and a broken red sandstone grinding material. The discovery of a terracotta *mithuna* plaque on the surface was noteworthy. Pottery assemblage included grey ware, red ware, and dull red ware and the main shapes were vases, bowls, miniature pots, *handis,* etc. Variety of decorations on the shreds included parallel incisions, chequered pattern, criss-cross designs etc. Due to high water table impeding excavation work could not be further continued upto the natural soil.

# SANSKRITIC AND DRAVIDIC INSCRIPTIONS'

## ANDHRA PRADESH

### 1. IKSHVAKU INSCRIPTION, KOTAPPAKONDA, DISTRICT GUNTUR

This inscription, partly damaged and engraved on a slab lying in the premises of the Trikutesvara Temple, is written in Prakrit language and Brahmi characters of second-third centuries AD. It states that a pillar *(thamba)* and an umbrella *(chhathu)* were donated to the Ariya-samgha by a certain [A]nhaka together with his wife, his son and other members of the family. The donor is described as the worshipper of Sidhatha (Siddhartha, i.e., Buddha) and belonging to a certain family *(tiya-kulikasa),* the name of which is not clear (pi. 107).

### 2. KAKATIYA INSCRIPTION, WARANGAL, DISTRICT WARANGAL

This inscription, written in Telugu language and characters on slab kept in the Archaeology Museum, Government of Andhra Pradesh, Warangal, was originally found at Kumari Kunta, Dautalapalli Mandalam of the same district. Dated in Saka 1119 (AD 1197), it refers to the reign of Kakatiya king Mahadeva and records the consecration of three gods namely, Mahadeva, Vasudeva and Suryadeva. Further, it records the gift of *vrittis* to the temple for the maintenance of worship and food offerings to the above gods and to a number of brahmanas (name given) by Mallireddi, son of Navireddi and Kommambika. The village Romupuru where a tank was stated to have been constructed is described as *nija-vritti* of *mahasamanta* Kusumanayaka, the chief of Kota-kuravi-pura and subordinate of *Mahamandalesvara* Kakatiya Mahadeva.

## ASSAM

### 3. COPPER PLATE INSCRIPTION, BISVANATH CHARIALI, DISTRICT SONITPUR

This single plate inscription is in the possession of Sri Debananda Borthakur, the priest of Visvanatha Temple. The inscription is in Assamese characters and Sanskrit language mixed with local dialect and is dated in Saka year 1607 (AD 1685). The inscription seems to state that the king named Gadadharasimha got the temple of Sri Visvanatha renovated and donated a number of items (enumerated) connected with the worship to the temple entrusting them to Narayan Kamal Borthakur, probably the priest.

### 4. STONE INSCRIPTION, HAJO, DISTRICT SONITPUR

This inscription is fixed on the gateway *(torana)* of the Hayagriva - Madhava Temple,

[1] Information from : M.D. Sampath, assisted by K.M. Bhadri and M.J. Sharma, T.S. Ravishankar, Jai Prakash, C.A. Padmanabha Sastry, N.N. Swamy and D.M. Nagaraju, Nagarjuna, S. Swaminathan, K. Karuppaiah, S. Rajavelu and S. Munirathanam, of the Epigraphy Branch, Mysore, Northern Zone, Lucknow and Southern Zone, Chennai, of the Survey.

Plate 107



*Kotappakanda : Ikshvaku inscription*

Hajo. The record is executed in Saka 1602 (AD 1780) and is written in Assamese characters and language. It states that one Ramjay Rajkhowa, the son of Paniphukan and the grandson of Phul-Barua dedicated the services of three persons, Sri Krishnacharan, Sonaphuli and Medhacharan to the temple of Madhava after making payment of Rupees sixty per each person.

## CHHATTISGARH

### 5. Three Stone Inscriptions, Jagadalpur, District Bastar

The first inscription, engraved on the pedestal of an image (which is missing), now preserved in the State Museum, Jagadalpur, was brought from the village Kuruspal, District Bastar. It is in Sanskrit language and Nagari characters of about the twelfth century AD and states that the image of Ugravaraha was installed.

The second inscription, engraved on a broken slab kept in the same museum, was brought from Chota Dongar, District Bastar. It is in Sanskrit language and Nagari characters of about the tenth century AD. It mentions a certain Sijana-Vallabha and *desisthana-samudaya* (probably an assembly), and also refers to the collection of tax amount from Kalyanavana and other places. Further it has a rare reference to a fine of twelve *khandugas* of rice from men and six *khandugas* of rice from women a punitory measure for the crime *paradara-vishaya* (adultery).

The third inscription, kept in the same museum, originally found at Khamargaon, Jagadalpur taluk, is in Sanskrit (corrupt) language and Nagari characters of about the thirteenth century AD. It belongs to the reign of the Nagavamsi ruler *Mahamandalesvara Kanaka Jayasighadeva* and records the grant of the village Jambu-grama by the ruler to god Jnanesvaradeva towards worship and food offerings. It also mentions a certain Srikesa, who probably was the pontiff entrusted with the grant of village.

### 6. Stone Inscription, Narayanpal, District Bastar

This inscription, engraved on a fragmentary stone slab kept in the temple at Narayanpal, is in corrupt Sanskrit and Nagari characters of about the fourteenth century AD. It refers to some grant made to a deity named Somala Somana[tha] probably at the instance of a Rajaguru (name lost) by the mahajanas of Temra and by one *sethi* Ramadeva.

## GUJARAT

### 7. Step-well Inscription, Gangad, District Ahmedabad

This inscription, engraved on a marble stone fixed on the wall of a step-well in the village, is engraved in Nagari characters. In the first two lines which are in local dialect it refers itself to the rule of Vaghela-maharana Sesamalla and to the making of the step-well at the instance of his mother Gauran ji. The inscription, in the subsequent portion, is divided into two versions, one in Sanskrit and the other in Gujarati, speaks of the same object in details giving the genealogy of the king and the purport of the construction of the well which was meant for the welfare of the people as well as to acquire merit for the queen mother.

8. JAINA IMAGE INSCRIPTION, KAVITHA, DISTRICT AHMEDABAD

This inscription is engraved on the back side of the halo *(prabhavali)* of the metal image of a *tirthankara* kept in the sanctum-sanctorum *(garbha-griha)* of the Jaina temple. Dated in the Samvat 1503 (AD 1446), it records that the image of Suparsva was caused to be made by Mala of Pragvata-jnati together with his wife Rajalade and other family members for their own merit.

## KARNATAKA

9. KALYANA CHALUKYA INSCRIPTION, DODDA-ABBEGERE, DISTRICT DAVANGERE

This Kannada inscription, engraved on a stone set up on the right side of the Isvara Temple, refers to the reign of Kalyana Chalukya king Tribhuvanamalla (Vikramaditya VI) and his subordinate Tribhuvanamalladeva Pandyadeva who was administering Nolambavadi thirty-two thousand. Dated in the forty-first Vikrama year (AD 1117), it refers to a grant of land by a certain *mahasamanta* Chau[mda]yya to the god Kalideva, after laying the feet of pontiff Jnanasivapandita, a disciple of Rudrasivapanditadeva.

10. KALYANA CHALUKYA INSCRIPTION, HIREKOGILUR, DISTRICT DAVANGERE

This Kannada inscription, engraved on a slab standing on the backside of the Kana-house of one Shri Gurumurthy, belongs to the reign of Trailokyamalladeva (Somesvara I). Dated in Saka 968 (AD 1046), it records the installation of the deity Subhatungesvara and grant of lands to the *matha* of the same temple for feeding ascetics, after laying the feet of the pontiff Chandrabharana-pandita by a feudatory Subhatunga who was administering Piriyakogilur, Kiriya-Kogilur, Kodalige, Emmeyur and Durmi-12 under the Nolamba chief Trailokyamalla Nolamba Permadideva.

11. HOYSALA INSCRIPTION, BASAVAPURA, DISTRICT DAVANGERE

This Kannada inscription, on a slab exposed inside the forest, belongs to the reign of Hoysala king Vira Ballala (Ballala II). Dated in Saka 1120 (AD 1198), it records the construction of a temple and the installation of the god Ballesvara. It states that a grant of one *mattar* and fifty *kamba* of land as made towards the worship, food offerings and the maintenance of the above temple at Heggundele by Balla-samanta, after laying the feet of the ascetic Bammajiya.

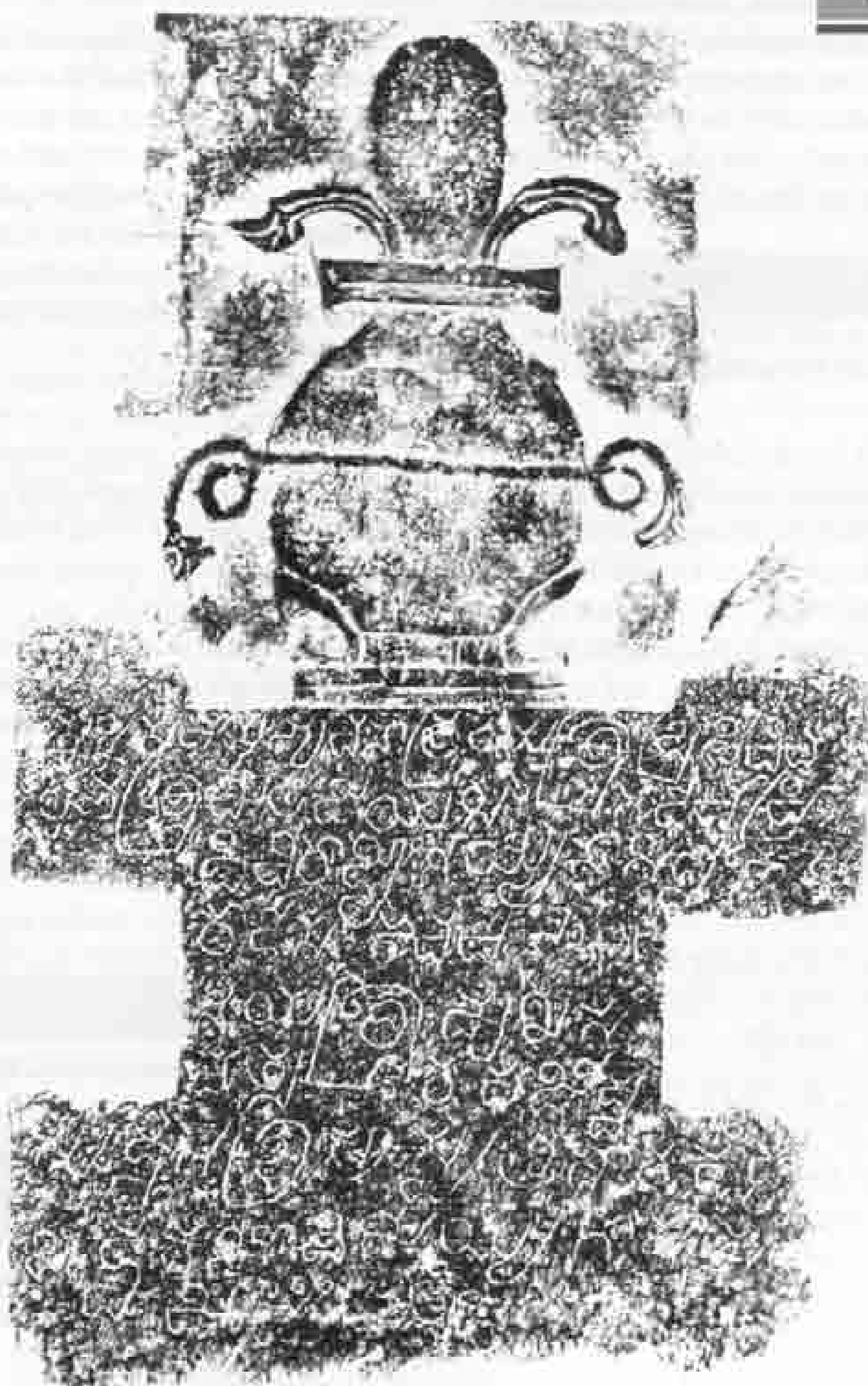
12. RASHTRAKUTA INSCRIPTION, NAREGAL, DISTRICT HAVERI

This Kannada inscription, engraved on a slab set up in the northern side of the Sarvesvara Temple, belongs to the reign of Rashtrakuta king Amoghavarsha I. Dated in the Saka year 797 (AD 875), it states that while Indapaya was administering Banavasi-nadu, the *Ayinura-nalvattu* (probably a merchant guild) seems to have made a grant of threshing floor (?) *(kade)* and grazing land (?) *(kavana)* to the deity *(bhatarige)* of Nareyagallu.

13. TWO KALYANA CHALUKYA INSCRIPTIONS, NAREGAL, DISTRICT HEVERI

Of the two Kannada inscriptions engraved on two slabs set up in the eastern side of the Sarvesvara Temple, the first one, belonging to the reign of Satyasraya (Iriva bedanga), is dated

Plate 108



Nargel : Kalyana Chalukya inscription

Saka 935 (AD 1013) and records the death of one Kosiga Basavaya Gosasa, when Bhivarasa was administering Banavasi-nadu. The second one, belonging to the reign of Jayasimgadeva (Jayasimha II), is dated in Saka 955 (AD 1003) and refers to the death of one Chiddara Jogimayya Gosasa on the given date (pi. 108).

## RAJASTHAN

### 14. FRAGMENTARY INSCRIPTIONS, KRISHNAVILASA, DISTRICT BARAN

Among the fragmentary inscriptions found on a number of sculptural pieces kept in a shed in the village, a few are noteworthy. One inscription, engraved on the pedestal of the Jaina Tirthankara Kunthanatha, in Nagari characters and Sanskrit language bears the date Vikrama 1181 (AD 1124) and mentions *acharya* Virasena and his disciple Mahasena and also *Sadhu* Sonapala and Palha Bhima.

Another inscription, engraved on a pedestal of a Jaina Tirthankara image, in Nagari characters and Sanskrit language, records the installation (of the image) by *Sadhu* Rahila and his two wives Kamalasri and Dhanusri in the Vikrama year 1188 (AD 1131).

A third one, on a broken slab engraved in the same language and characters and dated in Vikrama year 1201 (AD 1144) states that Sri Madanu, son of Naikaga-i-dhara along with his wife attained heaven on the given date at Tirtha-vilasa (probably Krishnavilasa).

### 15. TWO NAGARI INSCRIPTIONS, BI MM, DISTRICT BUNDI

The first inscription, engraved on a stone set up on the southeastern side of a well known as Rani-ki-vav is in Sanskrit and local dialect and bears the date in Vikrama 1757 and Saka 1622 (AD 1701). It records that the well *(bavadi)* was caused to be made by *maharani* Sri-Paila Kumvari daughter *of Maharaja* Jasawanta Singha and grand daughter of *Maharaja* Natha-rata Phatesingha ji.

The second inscription, engraved on a stone set up at the tank-bund of Gangasagar and Yamunasagar at the Bazar street, is in local dialect and dated in Vikrama 1942 (AD 1886). It contains the genealogy of the Chahuvana family of the Bundi province starting from Astipala to the ruling king Ramasimha, son of Vishnusimha. The purport of the record is to state that the two tanks Gangasagar and Yamunasagar were caused to be made along with the protective wall for providing water for all the people of Bundi without any discrimination at the instance of the queen (name not given), by Chandrabhanu Kavar, brother of Balabhadrasimha, who was the ruler of Nagod and belonged to Pratihara family.

## TAMIL NADU

### 16. PALLAVA CAVE INSCRIPTIONS, VALLAM, DISTRICT KANCHIPURAM

These two inscriptions, engraved on the *uttira* (beam) portions of the two lower caves in the village Vallam are in Tamil language and characters. On palaeographical grounds, these two inscriptions may be assigned to the first quarter of

the seventh century AD. The inscription in the first cave in two lines states that the rock-cut temple *(devakulam)* was caused to be made by a daughter (name not given) of one Lakkach-Chomasiyar. While the inscription in the next cave states that the rock-cut temple was caused to be made by Kommai, the daughter of Pallava Peraraisan (Pallava king). It is well known that the upper cave in the same place had yielded an important inscription of Pallava king Mahendravarman I and therefore, it is in all probability, the three caves including the above two, were cut out during the same period of the above king and princess Kommai and the Pallava king mentioned here may be identified with Mahendravarman I and his daughter.

17. COPPER-PLATE CHARTER OF VIJAYANAGARA, TIRUVADUTURAI, DISTRICT THANJAVUR

A copper-plate charter, the impression of which was supplied by Sri Nellai Nedumaran, Chennai, is stated to have been preserved in the Tiruvaduturai *matha,* Thanjavur, Tamilnadu. It is engraved in Sanskrit language and Nandi Nagari characters and belongs to the reign of Venkatapati (Venkata I) of Vijayanagara dynasty. Dated in Saka 1522 (AD 1600), it registers the tax-free gift of the village Kala Maturupettai situated in Vaigha-valanadu of Mathura-sima to a number of brahmanas of different *gotras* by the king.

18. TAMIL INSCRIPTION, TIRUNEDUNGALAM, DISTRICT TIRUCHCHIRAPALLI

This inscription, in characters of about the tenth century AD is engraved on the roof of Varadarajasvami Shrine of Tirunedungalanatha Temple. It states that with the understanding of the ascetic group of Puttapalli in Vadakavira-nadu, the festivals and the worship of the deity and ascetics *(risi puja)* were to be conducted out of the interest accrued from the gift of hundred *kasu* received from the pontiff Kanakasena.

19. CHOLA INSCRIPTION, TIRUNEDUNGALAM, DISTRICT TIRUCHCHIRAPALLI

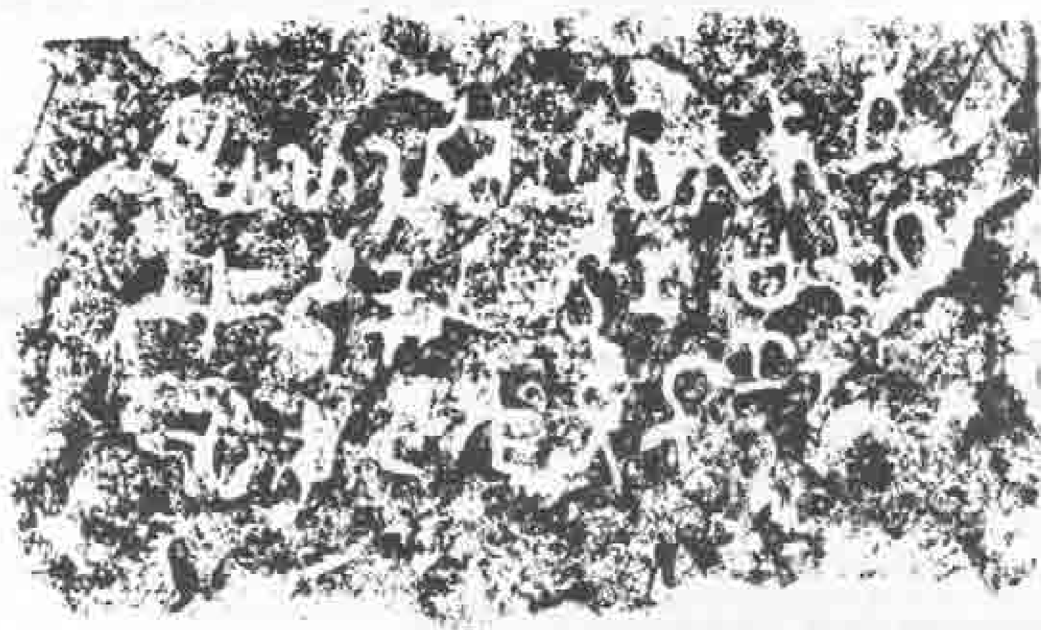
This Tamil inscription belonging to the reign of the Chola ruler Parantaka I (AD 907-955) is engraved on a loose pillar lying in the premises of Tirunedungalanathasvami Temple. Dated in the nineteenth regnal year (AD 926), it records that an individual Mukkan Vaman of Vachchiya-gotra (Vatsa-gotra), a native of Kulittandalai donated forty-five sheeps to burn a lamp to a deity of Tirunedungulam. The shepherd of Tirunedungulam who was entrusted with the gift agreed to provide fixed measure of oil to the temple.

20.TWO TAMIL-BRAHMI INSCRIPTIONS, AYYANAR KULAM NEAR MANNARKOVIL, DISTRICT TIRUNELVELLI

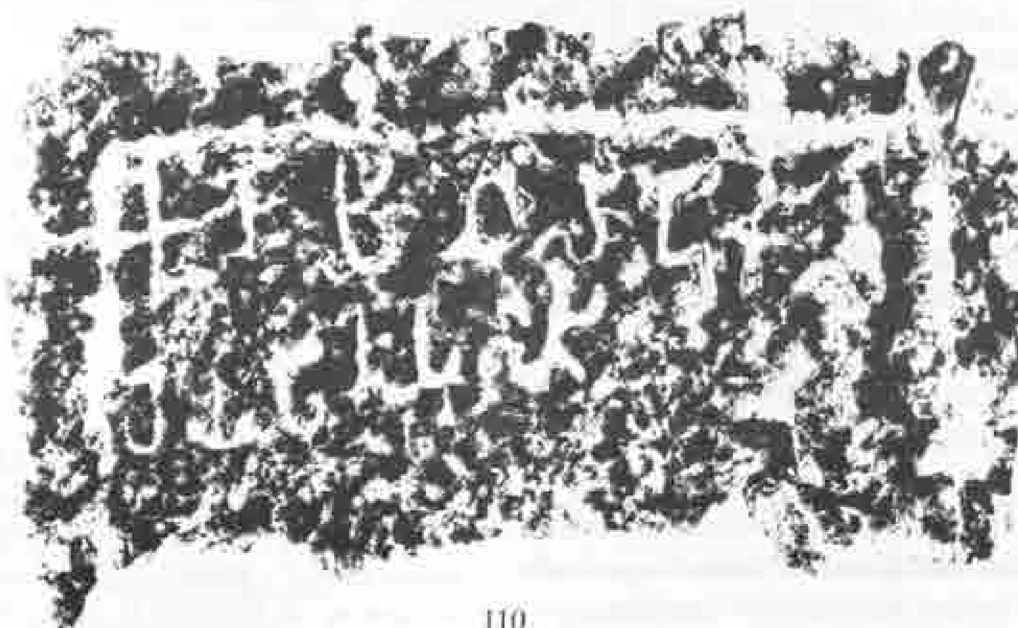
Of the two Tamil inscriptions in Brahmi characters which are datable on palaeographical grounds to the first century BC, the first one (A) is engraved on the eyebrow of a natural cavern locally known as Rajapparai on a small hillock in the village. It states that the stone bed *(pali)* was caused to be made by one Perunkurran, son of Kadigai Ko(pl.109).

The second inscription (B) is engraved on the stone head-rest over a bedrock on a small hillock known as Nilapparai located in front of the above natural cavern. It states that the bed was caused to be made by one Gunavin-ilango (pl.110).

Plates 109-110



109



110

*Ayyanar Kulam : Tamil Brahmi inscriptions*

21. PALLAVA HERO-STONE INSCRIPTION, ALANKUPPAM, DISTRICT VELLORE

This inscription, in Tamil language and characters of the ninth century AD, is engraved on a hero-stone set up in front of the Ponniyamman Temple of the village. It is dated in the fourteenth regnal year of Pallava king Dantivarman and records that when Maliyan was ruling over Adaiyaru-nadu, a certain Sattima Vakilavan Viraiyar fought against an invading army, saved the village Manarchchunai and died in the fight.

22. HERO-STONE INSCRIPTION, EDUTTAVAYINATTAM, DISTRICT VILUPURAM

This inscription, engraved on a hero-stone in a field, is in Tamil language and early Vatteluttu characters of the sixth century AD. It states that the hero-stone was set up, for one Sami, son of Kambadaru who died in a cattle raid by the Vettuvar of Kadaivenmalaikkodu (pl.111).

23. HERO-STONE INSCRIPTIONS, KALSIRUNAGALUR, DISTRICT VILUPURAM

Of the two hero-stone inscriptions, the first one engraved on a hero-stone set up in a field, is in Tamil language and Vatteluttu characters of the sixth-seventh century AD. It records the death of individual Kumaran, of Kilkovalur-nadu, when the Kosar and Maluvar attacked the village Uranirukkai.

The second inscription belongs to the reign of Pallava king Nandipottaraiyar, probably Nandivarman II, and refers to the death of Perummanar of Kovalur after burning the villages Senkottu Mathaikkalannur and Kaikur.

24. PALLAVA INSCRIPTION, KALSIRU NAGALUR, DISTRICT VILUPURAM

This inscription, engraved on a rock surface in a field outside the village, is in Tamil language and characters and belongs to the reign of the Pallava king Nandivarman. Dated in his sixth regnal year (AD 852), it registers the grant of paddy for the maintenance of a tank, by a servant of Peramanar of Muniyaraiyar-nadu.

25. COPPER-PLATE CHARTER, MELSEVUR, DISTRICT VILUPURAM

This copper-plate charter under the custody of the temple trustee of Risabha-Nathesvarar, Melsevur, is written in Tamil language and character of the sixteenth-seventeenth century AD. It records that the pontiff *viz.,* Aghora Sivacharya of Melai matha and Pichchar matha and Echcharaya-acharya of Kanappuram instructed their disciples Chettigal (merchant community) of twenty-four *gotras,* of Ulagamadevipuram to make provision for continuing the offerings and conducting worship, festivals and also burning of lamp to their family deity Ira gimittasvamiyar of Sevur at whose grace their people were believed to have been released from prison and saved from trouble.

26. CHOLA INSCRIPTION, SOMANDARKUDI, DISTRICT VILUPURUM

This inscription in Tamil language and characters is engraved on a loose stone boulder kept in the *prakara* of Somesvara Temple in the village. It is dated in the tenth regnal year (AD 917) of the Chola king Kopparakesari who may be identified with Parantaka I. It records the gift of gold to the temple Tiruchchomesvarar by a lady Annavannatti Malli, wife of Alisu Kadaiyar Ganga Sikamaniyar.

Plate 111



*Eduttavayinattam : hero-stone inscription*

## TRIPURA

27. COPPER-PLATE INSCRIPTION, AGARTALA, DISTRICT AGARTALA

This single copper-plate inscription with a portion on the left side missing, is now preserved in Tripura Government Museum. It is in Assamese characters and language mixed with Bengali. The inscription is dated in Saka 1673 and San 1060 (AD 1751). The available portion of the text refers to a grant of seven *dronas* of land in Udaipur *pargana* in the Hastinapura *sarkar* (territorial division) on the given date. From the above date it may be presumed that the donor was none other than the king Sri Govinda-manikya.

28. INSCRIPTION, BANADI, DISTRICT CHITRAKOOT

Engraved on the outer wall of northern entrance of the Mahalakshmi Temple and dated Saka 1759 and [Vikrama] 1894 (AD 1837), this inscription, in Nagari characters and local dialect, records the construction of Mahalakshmi Temple by Vinayaka Rava and mentions the name of mason(karigira) Matadin.

# ARABIC AND PERSIAN INSCRIPTIONS[1]

## DELHI

1. MUGHAL INSCRIPTIONS, DISTRICT DELHI

Among the three Mughal inscriptions, the first one composed by Rasai in Persian verse from Sunehri Masjid in Darya Ganj locality of Delhi, states that through the blessings of Shah Bhika, Raushanud Daula Zafar Khan erected the golden mosque during the reign of Muhammad Shah in the year AH 1157 (AD 1744).

The second one is a metrical Persian record from the Dargah-complex of Hadrat Qutbud Din Bakhtiyar Kaki, Mehrauli, Delhi, recording the demise of Shah Alam (II) in AH 1221 (AD 1806). The text was composed by Sayyid and inscribed by Mir Kalian Ridwai.

From the same Dargah-complex is the third metrical Mughal inscription in Persian, registering the death of Shah Akbar (Akbar II) in AH 1253 (AD 1837). Its text was composed by Zafar (i.e., Bahadur Shah, pen-name Zafar, the last Mughal ruler).

2. MISCELLANEOUS S INSCRIPTIONS, DISTRICT DELHI

Among the miscellaneous inscriptions copied or photographed from different parts of Delhi, mention may be made of the following.

A metrical Persian record from Ajmeri Darwaza in the Dargah-complex of Hadrat Qutbud Din Bakhtiyar Kaki, Mehrauli, Delhi, registers the erection of a gate by Shakir Khan in AH 1319 (AD 1707-08).

Among the epitaphic Persian records from Mehndiyan graveyard, set up by Ali Muhammad Sher, Mewat, trustee of the Dargah, one points to

1. Information from : M. Ilyas Quddusi, assisted by M. Yaseen Quddusi, G.S. Khwaja and M.A. Zeya, of the Epigraphy Branch, Nagpur, who copied two hundred and sixty-three inscriptions, examined and reported on during the year under review, out of which important ones are noticed here.

the grave of Maulana Shah Abdul Ghani Muhaddith Dehlawi, son of Maulana Imam Shah Waliullah Muhddith Dehlawi, who passed away in AH 1227 (AD 1812-13) at the age of fifty-seven years (during the reign of Akbar Shah II). The second one belongs to the grave of Maulana Shah Abdul Qadir Muhaddith, son of Hujjatul Islam Hadrat Maulana Imam Shah Waliullah Muhaddith, born in AH 1167 (AD 1753-54) and died in AH 1230 (AD 1814-15) at the age of sixty-three years (during the reign of Akbar Shah II).

Next in chronological order is the epitaph that belongs to the grave of Maulana Shah Rafiud Din Muhaddith, son of the above-mentioned Shah Waliullah Muhaddith. The occupant of the grave passed away in AH 1233 (AD 1817-18) at the age of seventy years (during the time of Akbar Shah II).

An epitaphic record in Persian comes from Dargah-i-Sabiri, Darya Ganj, Delhi, registering the death of a Saint Hadrat Sayyid Shah Sabir Ali Chishti Sabiri alias Shah Sabir Bakhsh, Sajjada Nashin of the Dargah of Qutbul Arifin Hadrat Shaikh Muhammad Qutb Madar Chishti Sabiri, in AH (AD 1822).

From the above mentioned Mehndiyan graveyard is an epitaphic record from the grave of an eminent Urdu poet of Delhi Momin Khan Momin. Biographical in nature, the inscription records that Hadrat Hakim Sayyid Muhammad Momin Khan Momin Dehlawi, son of Hakim Sayyid Ghulam Nabi Khan Dehlawi, was born in AH 1215 corresponding to AD 1800, at Kucha Chelan, Delhi. Hadrat Maulana Shah Abdul Aziz Muhaddith Dehlawi named him Muhammad Momin Khan. He received his education in Arabic and Persian from Maulana Shah Abdul Qadir Muhaddith. He was deeply associated with the renowned family of Shah Waliullah Muhaddith Dehlawi, for his religious upbringing. He was the spiritual disciple of Maulana Sayyid Ahmad Shahid Barelwi. The record further states that because of his eminent contribution to Urdu poetry in Ghazal-composition, he attained unrivalled distinguished position and reputation among the Urdu poets. He passed away in AH 1268, corresponding to AD 1851.

Among others, an epitaph records the death of Hadrat Maulana Shah Muhammad Umar, son of Mujahid-i-Islam Hadrat Maulana Shah Muhammad Ismail Shahid Dehlawi, son of Hadrat Maulana Shah Abdul Ghani Muhaddith Dehlawi, in AH 1268 (AD 1851-52). While another epitaphic record pertains to the grave of Hadrat Maulana Shah Makhsusullah Muhaddith Dehlawi, son of Hadrat Maulana Shah Rafiud Din Muhaddith, who passed away in AH 1273, corresponding to AD 1856, during the time of Bahadur Shah II.

From the above-mentioned Dargah-i-Sabiri is another epitaphic record, registering the death of a pious person Tajul Fuqara Hadrat Sayyid Shah Abdullah Chishti Sabiri, son and spiritual successor of Hadrat Shah Sabir Bakhsh Chishti Sabiri, in AH 1304 corresponding to AD 1887.

## KARNATAKA

### 3. Clay Sealing, Mirjan, District North Kannada

A photograph of a clay sealing found in excavations at Fort Mirjan, was received from

Virbhadra Rao of Dharwar Circle, Dharwar of the Survey. The clay sealing in Persian bears the name Rahman Khan, son of Ghazi Fahim along with the date AH 1183 (AD 1760-61).

## MADHYA PRADESH

4. EPITAPH, DISTRICT BETUL

Basically an Urdu inscription containing Quranic verses, from the local graveyard, Idgahwala Qabrastan of the district headquarters, it records the death of Sayyid Aziz Husain, son of Sayyid Muhsin Husain, Extra Assistant Commissioner, son of late Khan Bahadur Sayyid Muhammad Husain Lakhnawi, the Diwan of the Khairagadh State, in AH 1336 corresponding to AD 1917. It further recounts that the deceased himself drowned while saving his drowning wet-nurse in the Machehna river. He was born in AH 1317 (AD 1899). Though this inscription is not so old but it is very interesting and informative about the local history and certain official associated with the Khairagadh Native State.

5. EPITAPHS, DISTRICT JABALPUR

A couple of records from Rani Talab graveyard at the district headquarters, register the death of Kulsum (sci.) Bi in AH 1300 (AD 1883) and that of Maulawi Mahfuzul Bari Sahib, Tahsildar, inAH1307(AD 1889-90).

## MAHARASHTRA

6. MISCELLANEOUS INSCRIPTIONS, ACHALPUR, DISTRICT AMRAVATI

This Persian inscription from the western gate of the local Dargah of Shah Abdur Rahman Ghazi, besides recording attributes of Allah, mentions the date AH 1192 (AD 1778-79) both in figure and words, obviously hinting towards the completion of the said gate.

A brief epitaphic record in Persian from the local graveyard in front of the above-mentioned Dargah, obviously registers the death of a wealthy person Khalil Khan in AH 1211 (AD 1796-97) - *Sahib-i-Daulat Khalil* being the chronogram yielding the date. It also refers to the repairing (obviously of the grave) in AH 1321 (AD 1903-04).

7. MISCELLANEOUS INSCRIPTION, DAULATABAD, DISTRICT AURANGABAD

This beautiful but brief metrical inscription in Persian and Nastaliq characters, from Nagar Talab mosque, assigns its construction to Muhammad Dost (son of) Qasim Bag in AH 1061 (AD 1650-51).

8. MISCELLANEOUS INSCRIPTION, BORKHERA, DISTRICT JALGAON

This Persian record from a local tomb records the death of Hadrat Bandagi Miyan Shah Dilawar in AH 944 (AD 1538).

## PUNJAB

9. MUGHAL INSCRIPTIONS, BAHADURGARH, DISTRICT PATIALA

Among the two Mughal inscriptions, one belongs to the mosque inside the Bahadurgarh Fort, assigning the construction of the mosque to Saif Khan during the reign of Shah Alamgir (i.e. Aurangzeb) son of Shah Jahan, in AH 1077 (AD 1666-67). It is a beautiful metrical record in Persian in Nastaliq characters.

The second inscription is an abraded one, photographed from the gun fixed near the Police Office Gate on Patiala Bahadurgarh Road. *Nawwab Saif Khan Sana* 1077 (AD 1666-67), is the only readable part of the inscription.

10. MISCELLEANEOUS INSCRIPTION, BAHADURGARH, DISTRICT PATIALA

Near the same Police Office Gate, mentioned above, is another gun bearing an inscription too abraded to admit of complete decipherment. Its first line reads : *Darb-i-Top-i-Lakshman Ban,* i.e., striking (capacity) of the Gun Lakshman Ban.

## UTTAR PRADESH

11. EPITAPH, DISTRICT AGRA

This metrical record in Urdu from Idgah wala Qabrastan refers to the death of Hidayatullah Khan, son of Qudratullah Khan, in AH 1286 (AD 1869).

12. INSCRIPTION OF THE NAWWABS OF AWADH, DISTRICT LICKNOW

This metrical inscription in Persia composed by Sarir, is from Karbala Nasirud Din Haidar, Lucknow, that records the death of Nasirud Din Haidar in AH 1253 (AD 1837-38).

13. MISCELLANEOUS INSCRIPTIONS, DISTRICT LICKNOW

This metrical Persian record composed by Rashid comes from the site Shia Jami Masjid at the district headquarters, Lucknow. It records that Fakhruz Zamani Nawwab Tajun Nisa Begam purchased a piece of land out of her own money and thereon got constructed a mosque in AH 1288 (AD 1872).

14 MISCELLEANEOUS INSCRIPTIONS, KAKORI, DISTRICT LUCKNOW

A good number of Persian inscriptions, mostly the epitaphs, were copied from Kakori and some of them deserve our special mention here.

A brief inscription at the faeade of a mosque in Mahalla Jhanjhari Rauda simply reads : *Baitul Atiq* which is actually a chronogram, yielding the date AH 1023 (AD 1614-15) for the construction of the mosque. [*Baitul Atiq* also means the mosque at Mecca].

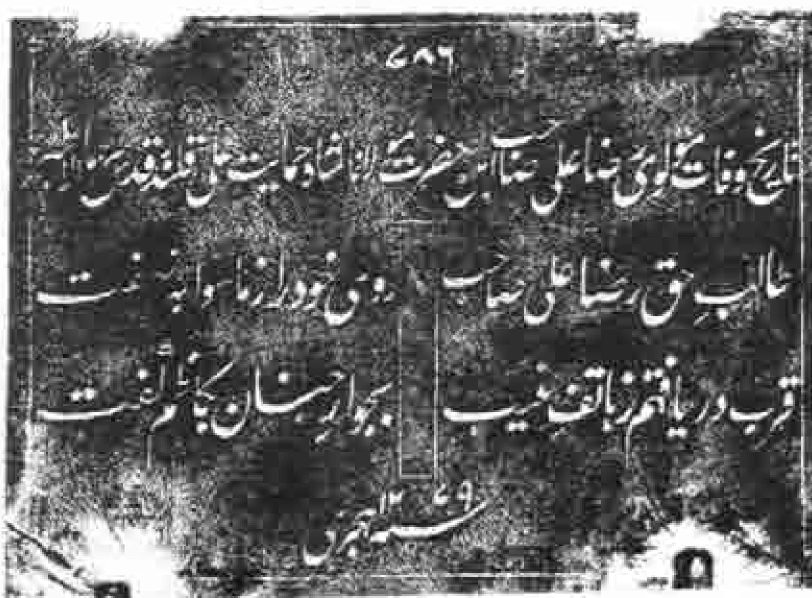
Among the epitaphic records copied from different parts of the town, chronologically speaking, the first one in metrical Persian, belongs to the grave of Shah Sibghatullah, a learned saintly figure, who passed away in AH 1211 (AD 1796). Its text was composed by Qaisari. The second one, again in metrical Persian, pertains to the grave of Maulana Hamidud Din sahib Kakorwi who is spoken highly of his knowledge and erudition. It is further recorded that this renowned scholar breathed his last at the age of eighty-four years in AH 1215 (AD 1801). The third one is in chronological order, is the inscription from the tomb of Shah Muhammad Kazim, that registers the death of Hadrat Maulana Shah Himayat Ali Qalandar, son and spiritual successor of Hadrat Shah Muhammad Kazim Qalandar, in AH 1226 (AD 1811) (pl 112).

According to the metrical Persian inscription composed by Turab and fixed over the door of the above-mentioned tomb, the tomb was built by Lai Muhammad, the spiritual disciple of Shah Muhammad Kazim Qalandar, in AH 1230 (AD 1814-15).

Plates 112-113



112



113

*Kakori : Persian inscriptions*

Next in chronological sequence is the epitaphic record in Persian that comes from the tomb of Shah Turab Ali. This beautiful inscription in Nastaliq style registers the death of Hadrat Shah Hakim Basti Sahib, the youngest son of Hadrat Shah Muhammad Kazim Qalandar, in AH 1236 (AD 1820). In the same tomb, on the northern wall is another Persian inscription that records the death of the wife of Shah Turab Ali Qalandar, in AH 1243 (AD 1828). Qaisari was the composer of the metrical text.

From the above mentioned tomb of Shah Muhammad Kazim there is another Persian inscription in Nastaliq characters, that mentions the death of Hadrat Shah Mir Muhammad Qalandar, younger brother and spiritual successor of Shah Muhammad Kazim, in AH 1244 (AD 1828).

Wife of Hadrat Shah Muhammad Kazim (name not mentioned) passed away in AH 1247 (AD 1832) as recorded in a Persian inscription that again comes from the tomb of Shah Turab Ali.

A very interesting epitaphic record in Persian verse pertains to the grave of a scholar and theologian Maulana Haji Aminuddin Shah Sahib Muhaddith who passed away in AH 1253, corresponding to AD 1837, 1894 Samat Bikrami and 1244 Fasli. It is interesting to note that in four hemistichs of the two couplets, four different chronograms yielding the above-mentioned four dates in different eras, have been composed. It also refers to the fact that the slab was set up by Mushir Ali Abbas, the grandson of the deceased. Unfortunately the name of the master composer is not mentioned.

From the tomb complex of Shah Muhammad Kazim is found another Persian inscription, registering the death of a learned person Maulawi Rada Ali, son of Maulana Shah Himayat Ali Qalandar, in AH 1279 (AD 1862-63) (pl. 113).

Pertaining to the tomb of Shah Turab Ali is an Urdu inscription assigning the construction of the tomb of Ahmad Ali Khan, the true spiritual disciple of the saint, in AH 1280 (AD 1863-64). Nasir was the composer of the metrical text.

In a chamber, adjacent to the above-mentioned tomb, there is a Persian record that registers the death of a learned and pious person Maulana Shah Haidar Ali Qalandar, in AH 1284 (AD 1865-66).

Maulawi Muhsin, because of spiritual attachment with the saint, constructed the tomb of Shah Karamat Ali in AH 1305 (AD 1887-88), as evident from a brief metrical Persian inscription fixed over the door of the tomb.

The last epigraph in Persian from Kakori records the death of a pious person Hadrat Shah Rahim Basit, grand son of Shah Muhammad Kazim, in AH 1311, corresponding to AD 1894.

15. MUGHAL INSCRIPTION, SARAWA, DISTRICT MEERUT

A Mughal inscription (not *in situ)* in Persian, executed in Naskh character, was copied from the local Dargah of Shah Bukhari. This inscription originally belonged to a mosque nearby. It assigns the construction of the mosque to Nawwab Mahabat Khan and under the supervision of the humble Abdullah, son of Sadullah, in AH 1023

(AD 1614). The record also mentions the name of the Mughal emperor, Shah Nurud Din Jahangir.

16. MISCELLANEOUS INSCRIPTION, JALALABAD, DISTRICT MUZAFFARNAGAR

This metrical record in Persian, pertaining to the local bridge, assigns its construction over Krisni (river), to the dignified Khan Husain Ali Khan in AH 1264 (AD 1847-48).

17. MISCELLANEOUS INSCRIPTIONS, DISTRICT PILIBHIT

A couple of inscriptions in Arabic from the Jami Masjid at Pilibhit, register two chronogrammatic traditions of the Prophet about mosque, yielding the years AH 1181 (AD 1767-68) and AH 1182 (AD 1768-69). They obviously hint towards the fact that the construction-work of the mosque began on the first date and completed on the second.

18. INSCRIPTION OF THE NAWWABS OF AWADH, KHAIRABAD, DISTRICT SITAPUR

A metrical record in Persian from a local mosque called Masjid Imam Bada, assigns its construction to a person whose epithet is given as Makka (original name not mentioned) and who was associated with the dignified court of Sulaiman Jah (i.e., Nasirud Din Hyder, the Nawwab of Awadh), in AH 1246 (AD 1830-31).

19. MISCELLANEOUS INSCRIPTIONS, KHAIRABAD, DISTRICT SITAPUR

Among the miscellaneous inscriptions copied from different parts of the town, is a Persian record from the Dargah of Hadrat Makhdum Shaikh Sadud Din, Mahalla Shaikh Sarai. It records the date of the death of Hadrat Makhdum Shaikh Sadud Din entitled Makhdum-i-Kabir in AH 922 (AD 1516). The metrical part of the text was composed by Faidi (who should not be confused with Faidi of Emperor Akbar's time). The present record appears to be a copy of the old one as it also refers to the name of the existing *Sajjada Nashin* of the Dargah, Najmul Hasan.

Three metrical records in Persian have been copied from the tomb called Chhote Makhdum-ki-Dargah, from where earlier also one metrical Persian record had been copied *{Annual Report on Indian Epigraphy, 1977-78,* Appendix D,192). These inscriptions are in a damaged condition. They record the death of an eminent saint and pole-star of the time (Sayyid Nizamud Din Allah Diyah alias Chhote Makhdum Sahib) in AH 993 (AD 1585). One of these inscriptions, also records that the tomb of the deceased saint was constructed in AH 994 (AD 1585-86). One Nami was the composer of these metrical texts. This composer can be identified with the famous Mir Muhammad Masum Nami of Akbar's court.

Apart from the above tomb proper, three epitaphic records were photographed from the tomb-complex, recording the death of Makhdum Sayyid Alam in AH 1007 (AD 1598), Makhdum Sayyid Abdullah in AH 1043 (AD 1634) and Sayyid Muhammad Isa in AH 1068 (AD 1657).

A couple of epitaphic records in Persian, photographed from the Dargah-complex of Hadrat Makhdum Shaikh Sadud Din, mentioned above, register the death of the learned scholar Maulana Fadl Imam, father of Allama Fadl-i-Haq, in AH 1240 (AD 1824-25) and that of Shamsul Ulama Hadrat Allama Muhammad Abdul Haq, son of

Allama Fadl-i-Haq, in AH 1316 (AD 1898-99) who was born in the year AH 1244 (AD 1828-29).

20. EPITAPH, DISTRICT VARANASI

A Persian inscription in metrical form was copied from a local Muslim graveyard at Varanasi, that records the death of Shahzada Yasin, the fifth son of the Deccan ruler Tipu Sultan, at the age of sixty-six years in AH 1265 (AD 1848-49). The text was composed by Khatir.

## WEST BENGAL

21. INSCRIPTION OF THE SULTANS OF BENGAL, LALBAZAR, DISTRICT MALDA

This is a fragmentary inscription in Arabic, originally from a mosque at Haugram/Kalia Chak, and now preserved at Gaur Social Welfare Mission, Lalbazar. Its extant portion reads a Quranic verse about the holy mosque at Mecca and also the title of the Bengal Sultan, Alaud Dunya wad-Din Abul Muzaffar. The date and other details are lost.

22. MISCELLANEOUS INSCRIPTION, LALBAZAR, DISTRICT MALDA

Preserved at Gaur Social Welfare Mission, Lalbazar, is another fragmentary inscription in Arabic. The text is too damaged to admit of satisfactory decipherment. However, it provides the date in words AH 875 (AD 1470-71).

23. SWORD BEARING INSCRIPTION OK THE NAWWABS OF KHAIRPUR STATE (SIND), DISTRICT MURSHIDABAD

In the Hazardwari Palace Museum at Murshidabad is a sword on display that bears brief Arabic and Persian inscriptions in five parts. Its historical part in Persian mentions the name Sarkar Mir Rustam Ali Khan Talpur and further records that the manufacture of the sword is the work of Muhammad Kazim Shirazi, dated AH 1234 (AD 1818-19).

24. INSCRIPTIONS OF THE NAWWABS OF MURSHIDABAD, DISTRICT MURSHIDABAD

In the above-mentioned museum in the store-room at Murshidabad are kept helmet and *silver Atoms* bearing inscriptions. The helmet bears a bilingual, i.e., Persian and English inscription, dated AH 1254 (AD 1838-39). Obviously, it indicates that the helmet belonged to His Highness Nawwab Nazim-i-Subah-i-Bang (i.e., Bengal) Muntazim-i-Mulk Muhsinud Daula Faridun Jan Sayyid Mansur Ali Khan Bahadur Nusrat Jang (AD 1838-81).

There are a couple of silver *Alams* which bear one and the same Persian text purporting that (the *Alam)* has been endowed for Imam Bara-i-Buzurg (i.e., Bada Imam Bada) by the servant of the family of the Prophet (Al-i-Aba) Sayyid Mansur Ali (who is mentioned above with his dignified titles).

## ANDHRA PRADESH

1. GOLD COINS, DISTRICT KRISHNA

The Department of Archaeology and Museums, the Government of Andhra Pradesh, received from the office of the State Collectorate thirty-one coins as treasure trove. These are Roman coins, from Penuganchiprolu and Mandal villages, in gold.

## CHHATTISGARH

2. BILLON COINS, SIRPUR, DISTRICT MAHASAMUND

Two billon coins were received from A.K. Sharma, Director, Bodhi Satwa Nagarjuna Memorial Institute and Research Centre, Nagpur, for study and a report thereon by the Director (Epigraphy), Arabic and Persian Inscriptions, Nagpur. Two coins were known type of bilingual (Arabic and Sanskrit in Naskh and Nagari) issues of Alaud Din Khalji (1296-1316), reading as – *Sultanu'1 A 'zam 'Alau 'd Dunya wa 'd Din* in the obverse, and *Muhammad Shah* in Arabic and *Shri Sultan Alawadin 708* in Sanskrit, in the reverse.

## HARYANA

3. SILVER COINS, DAHA, DISTRICT KARNAL

In the composite collection of eighty-one coins, excavated at three different segments, received by the Director (Epigraphy), Arabic and Persian Inscriptions, Nagpur, from Chandigarh Circle, Chandigarh, of the Survey, for study and a report thereon, there were thirty-one known type silver issues in one of the segments, belonging to Aurangzeb (1658-1707) and Shah Alam I (1707-12). In this lot found at Daha, twenty-seven issues of Aurangzeb represented eleven mints *viz.,* Tatta (1), Patna (2), Akbarnagar, i.e., Rajmah (1), Surat (7), Lucknow(l), Lahore (6), Shahjahanabad, i.e., Delhi (3), Itawa (3), Islamabad, i.e., Mathura (1), Burhanpur (1) and Murshidabad (1). While the remaining four issues of Shah Alam I represented Bareilly (1), Surat (2) and Itawa (1) mints.

4. COINS, SHAHPUR, DISTRICT PANIPAT

Five copper coins of Lodi period were collected from Village Shahpur by D.S. Malik, of the Department of Archaeology and Museums, Government of Haryana.

## PUNJAB

5. SILVER COINS, AMRITSAR, DISTRICT AMRITSAR

In the composite collection of eighty-one coins, referred to above, there are sixteen silver issues discovered at Amritsar, by the Director (Epigraphy) Nagpur, of the Survey, noticed four of them representing Mughal emperor Akbar (1556-1606) from Lahore and Ahmedabad mints and six issues being the imitation of Akbar's coins. One coin from Surat mint belonged to Shah Jahan

(1628-58) and the rest five were the religious tokens.

6. COPPER COINS PATIALA, DISTRICT PATIALA

In the above mentioned composite collection of eighty-one coins, the Director (Epigraphy), Nagpur, of the Survey, noticed thirty-four copper issues excavated at Patiala representing Akbar (19), Jahangir (10) and Shah Jahan (5). Akbar's issues except one (wherein mint name cut off) came from Bairath (10), Narnaul (3), Agra (1), Delhi (3) and Burhanpur (1). Jahangir was represented by Bairath (4), Ajmer (1), Agra (2), Udaipur (1) and Narnaul (2) mints. Shah Jahan's issues represented Bairath (4) and Udaipur (1) mints.

## TAMIL NADU

7. SCULPTURES, TARANGAMPADI, DISTRICT NAGAPATTINAM

The Commissioner of Museums along with the curator of Tarangampadi Fort Museum, District Nagapattinam visited the Danish Fort in Tarangampadi built by the Danish in 1620 and the nearby ancient Masilamanishvarar Siva Temple and obtained the sculptures of Ganesa, Dakshinamurti Siva, Durga and Lingodbhava in stone as treasure trove from Kodaivalagam.

They also studied fourteen *puja* articles obtained as treasure trove objects in Pillai Perumal Nallur village and visited the find spot of these articles. On studying the bricks used for the old building and inner well found under 8' depth it is presumed that there is possibility of getting more artefacts of old buildings may be a buried temple.

## WEST BENGAL

8. COINS, KOLKATA

Six hundred eighteen coins were taken over from the Customs Department (Foreign Post), Kolkata, by the representatives of the Kolkata Circle, of the Survey, some of which belong to the ancient times.

9. SILVER COINS, KOLKATA

Seven silver coins of the Koch kings were collected by the Kolkata Circle, of the Survey, from N.K. Bothra, Calcutta. Of these four coins belong to king Nara Narayana, two coins to Lakshmi Narayana and one coin to king Raghudeva.

10. SILVER AND COPPER COINS, NUTANPARA, DISTRICT MURSHIDABAD

Twenty coins were collected by the Kolkata Circle, of the Survey, from Kshudiram Das, Antique Dealer, Nutanpara. One copper coin of the lot belongs to Kushan dynasty, four silver coins belong to Koch dynasty of Koch Bihar and other silver and copper coins belong to Bengal Sultanate and Mughal dynasty.

# IV. OTHER IMPORTANT DISCOVERIES

## ANDHRA PRADESH

1. INSCRIPTIONS, PHANIGIRI, DISTRICT NALGONDA

The Department of Archaeology and Museums, Government of Andhra Pradesh, conducted epigraphical survey and copied several inscriptions belonging to the various dynasties. The inscriptions from Phanigiri (District Nalgonda) in second-third century Brahmi characters are some of the important epigraphs reported by the Directorate.

## GOA

2. SCULPTURES, HIV RIM BUDRUK, DISTRICT NORTH GOA

The Mini Circle, Goa, of the Survey, reported the discovery of a four-handed standing Mahishamarddini holding sword in the upper right hand while the lower right hand is shown trampling the Mahisha with trident. The upper left hand is holding shield while the lower left hand is holding the Mahisha's tongue. On the lower right is depicted a standing female. Another sculpture of *Gaja*-Lakshmi seated *in padmasana,* flanked by two elephants, holding pot and pouring water while she is holding lotus buds in both the hands. The *mahouts* on elephant seated with sool and a group of musicians and dancers flanking the *Gaja-Lakshmi.*

3. TEMPLES, NAGVE, DISTRICT NORTH GOA

The Mini Circle, Goa, of the Survey, under JVP. Rao, Manoj Saxena, Sriguru Bagi, Gangadhar Korgaonkar, Gopal Rao, Prakash Gaonkar, Dilip S Gauwde and Pandurang Dev Haldankar, discovered three late medieval temple remains in north Goa in the forest of village Nagve locally known as sacred grove. These are built in laterite masonry. Two loose sculptures namely Brahmani Mahamaya measuring 56cm x 47cm x 9.5cm holding two snakes in both hands, seated on throne, wearing a necklace, head-gear tied with snake. The other one is a female deity (local goddess), in standing posture, measuring 63cm x 36cm x 6cm, two handed, holding sword in right hand and bowl in the left hand, flanked by *chauri-bearer* and a bull on the left side below, on the right side a female seated in *anjali-mudra.* Another small temple ruins has only one sculpture of a female deity standing in a boat, wearing only the lower garment, holding sword in right hand and bowl in the left hand. The mast of boat with sail is shown on the right side. The mast of ships bears a linear human figure. Three sailors are shown seated, sailing the boat. Two of them shown on right side and one on the left side of the boat with ore in hand. The water is represented by three fishes on the bottom frame of the sculpture.

## GUJARAT

4. JANA SCULPTI RE, WALMI, DISTRICT A.N'AND

D.R. Gehlot, assisted by S.S. Parekh, of the Vadodara Circle, of the Survey, discovered one marble stone sculpture of Jaina Tirthankara (headless) in the agricultural farm of Water and Land Management Institute, Anand.

Jaina Tirthankara (Parsvanatha), shown seated in *padmasana* bearing *Srivatsa* symbol on the chest and snake *lanchana* is found depicted on the centre of the pedestal. The sculpture engraved with Devanagari inscription is datable to *circa* twelfth century AD.

5. ANCIENT SITE, GANDHAR, DISTRICT BHARUCH

D.R. Gehlot, assisted by S.S. Parekh, N.K. Pathak, N.A. Saiyed and G.V. Pillai, of the Vadodara Circle, of the Survey, discovered seven Jaina sculptures (headless), made of marble and schist on getting an information from a local resident. Of these, three contain inscriptions on the pedestal in Devanagari script of early fifteenth and seventeenth century AD. Besides the area was also surveyed by the team, who identified a series of ancient mounds in and around the village and collected pottery and glazed ware of medieval period (early historical remains were reported from the site earlier *(1965-66,* p. 12).

## HARYANA

6. PRATIHARA SCULPTURES, PEHOWA, DISTRICT KI RI KSIIETRA

The Department of Archaeology, Government of Haryana, carried out scientific clearance work at the site known as Vishva mittar-ka-Tila under the supervision of D.S. Malik, assisted by Dhoop Singh, R.S. Dahiya and Ashok Kumar, revealed the foundation of a brick temple and the stone sculptures depicting the epic scenes like Hanuman, Rama, warrior, Krishna-Balarama, Rama-Lakshmana-Sita, Jarasandha-vadha, Rama-Lakshmana-Jatayu, Rama-Lakshmana-Parasurama, goddess, Arjuna-Krishna, Putana-*vadha,* attendants, architectural members, *gandharvas* datable to *circa* ninth-tenth century.

7. SCULPTURES, THAKUR DWARA TEMPLE, MORNI-KA-TAL, DISTRICT PANCHKULA

Thirty Brahmanical sculptures and architraves of Pratihara period lying at the ancient temple site were documented by Chander Pal Singh of the Directorate of Archaeology and Museums, Government of Haryana. The sculptures include the icons of Karttikeya, Surya, Siva, Uma-Mahesvara, Ganesa, Lakulisa, Vishnu, Nataraja, lion, Trimurti and *Siva-linga,* etc.

## HIMACHAL PRADESH

8. TEMPLE, DADA, DISTRICT KANGRA

Rahul Bhosle, of the Mini Circle, Shimla, of the Survey, located a temple dedicated to Radha-Krishna on Dhaliara-Ghati Road. Facing west and oriented east-west, the temple is rectangular on plan. It has a typical *sikhara* having three *garbha-grihas* and one common *mandapa,* all raised over a single platform. The inner walls of the temple are painted with scenes of Krishna-Lila from *Mahabharata,* palace scenes besides floral and geometrical designs. Three *garbha-grihas* contained a *Siva-linga,* Radha-Krishna, Hanuman and Surya respectively. The temple was built by Raja Ram Singh in Vikram Samvat 1831.

9. STONE TEMPLES AND LOOSE SCULPTURES, SARAH, DISTRICT KANGRA

Rahul Bhosle, of the Mini Circle, Shimla, of the Survey, located on Gaggal-Dharamshala Road at a distance of 8 km two temples and a number of loose sculptures and architectural members. Of the two temples, one dedicated to Durga is in dilapidated condition. Facing north, it is oriented north-south with an irregular shape. It consists of a *garbha-griha* and a *mandapa.* There are abraded sandstone images of Narasimha, Varaha, etc. On stylistic ground, the temple could be ascribed to the sixteenth century AD. The other temple dedicated to Radha-Krishna is on the north-west of Durga temple. Facing south and oriented north-south, it is square on plan and has a domical *sikhara.* A marble image of Radha-Krishna of the present century is enshrined in the sanctum. Within the premises of the temples are numerous loose sculptures and architectural members, which once formed part of a Durga temple. Among them are tiger, *Siva-linga,* torus mouldings, capitals, *amalakas,* pillar bases, etc.

10. LOOSE SCULPTURES, TYARA, DISTRICT KANGRA

Rahul Bhosle and Charan Dass, of the Mini Circle, Shimla, of the Survey, collected a few mutilated and abraded sandstone, *viz.,* Mahishamarddini, one each of female and male deity, two attendant figures, etc., from the village which is located about 8 km, south of Gaggal-Lung State Highway.

11. TEMPLE AND PALACE-COMPLEX, RAJPUR JASWAN, DISTRICT UNA

Rahul Bhosle, of the Mini Circle, Shimla, of the Survey, located 16km north of Amb, a temple and a palace-complex. The temple known by the name of Kamalapati is oriented east-west facing west. It has a *sikhara* having three *ratha* plan. It comprises *garbha-griha,* an *antarala* and a *mandapa.* The entire complex is enclosed by a boundary wall. The roof of the *garbha-griha* has curvilinear *sikhara* while the *mandapa* is pyramidal. The palace-complex comprises palace with gateway, horse-stable, *baradari,* guardrooms. The palace is a huge majestic double-storeyed structure with entrance gate at the west and octagonal bastion at the corner with open space and plenty of chambers. The horse-stable has an open pillared double-storeyed structure with numerous cells. Located south-east is the entrance gateway in the form of three huge bastions. The intersecting walls have collapsed due to flood. Facing south-west and oriented north-west is a rectangular double-storeyed structure with arched opening on all the four sides. Two double-storeyed guard rooms with multi-chambers form part of the palatial-complex of Rajas of Amb (seventeenth century AD).

12. TEMPLES AT MASLANA, DISTRICT UNA

Rahul Bhosle, of the Mini Circle, Shimla, of the Survey, located two temples about 2 km south-west of Rajpur Jaswan, one is facing north, oriented north-south. It is rectangular on plan and comprises a *garbha-griha,* an *antarala* and a small *mandapa.* The temple was raised over a low platform followed by plain walls and domical *sikharas.* The *garbha-griha* has a sandal wood image of Jagannatha. The temple could be ascribed to the nineteenth century AD. The other is a *samadhi.* It is square on plan and facing north and oriented north-south. The temple has a *sikhara* with *triratha* plan raised over a low platform and

comprises *garbha-griha* and closed *pradakshina-patha.* The walls are painted with floral, faunal, human and geometrical motifs. In the *garbha-griha* is kept *sati-stones* in marble while the niches carry two sati-stones and a figure of Mahamaya. The temple is assignable to the seventeenth-eighteenth century AD.

## JAMMU AND KASHMIR

13. REMAINS OF TEMPLE, MANUAL, DISTRICT KATHURA

B.R. Mani, of the Srinagar Circle, of the Survey, noticed remains of the stone temple to the east of the Kala dera II group of temples after clearing the vegetational growth. The temple mound retains only plinth level of the temple.

14. INSCRIBED CLAY TABLETS RUINED NYARMA MONASTERY DISTRICT LEH

B.R. Mani, of the Srinagar Circle, of the Survey, found five clay tablets (pl. 114, fig.26) along with stupa-shaped offerings *tsa-tsa* from two ruined stupas in the complex of the Nyarma monastery, datable to about eleventh century AD which is supposed to be the earliest moanstery in Ladakh established in the time of Tibetan translator Rinchen Zangpo.

## MANIPUR

15. BRONZE VESSELS, KHONG.IOM, DISTRICT THOUBAL

Eight bronze vessels of the nineteenth century were recovered from Khongjom river by the State Department of Archaeology, Government of Manipur.

## TAMIL NADU

16. SCULPTURES AND ARCHITECTURAL REMAINS DEVASTHANAM PETTAIVAITHALAIPETTAL, DISTRICT KARUR

Thiru R. Kannan, Commissioner of Museum, Government Museum, Egmore, Chennai, on his tour to Karur to select a suitable building for the proposed Karur District Museum, along with the Curator (Education), Chennai Museum and the Curator, Trichy Government Museum visited the village Devasthanam and identified in the vicinity of the Siva Temple Madhyanesvarar Thirukkoil, Chola period sculptures and fragmentary architectural parts of medieval period. A late Pallava style lion pillar, two broken *dvarapalaka* sculptures and a fine seated Buddha were also recovered. The *dvarapala* sculptures are partly broken. Even though damaged, these images exhibit good workmanship of Chola period Muttaraiyar art style (c. tenth century AD). The seated Buddha is in *arddhaparyankasana,* found under a coconut tree in the nearby hut.

17. TEMPLE REMAINS AND SCULPTURES, ODUKKUR, DISTRICT PUDUKKOTTAL

G. Thirumoorthy and T. Sreelakshmi, of the Chennai Circle, of the Survey, noticed a small mound and sculptures of Vishnu, Brahma, *Sapta-matrikas,* Nandi and *linga* besides architectural members of a ruined temple. Scientific clearance of the site revealed *adhishthana* moulding of a temple. The remains could be assigned to the early Chola period.

Plate 114




*Nyarma (Leh) : clay tablets*



SITE PLAN OF NYARMA MONASTERY AT NYARMA (THIKSEY) DISTT. LEH

N

SCALE 10 0 10 20 30 M

RAINY DRAIN

OPEN LAND

MONASTERY

RUINS

TO THIKSEY

RUINS

CHORTEN

RUINS

CHORTEN

FIELD

CHORTEN

RUINS

CHORTEN

CHORTEN

WALL

AGRICULTURAL

OPEN LAND

CHORTEN

CHORTEN

CHORTEN

PRIVATE HOUSE

## 18. Archaeological Mounds and Microliths, Rasulpur, District Agra

Arakhita Pradhan, V.N. Prabhakar, Ramesh S. Mulimani and K. Athoilu Kabui, of the Agra Circle, of the Survey, discovered two archaeological mounds near village Rasu Pur in tehsil Kiraoli. A lintel of temple in red sandstone was found lying on the surface of one mound locally called Hanumanji-Ki-Rathiel, reported earlier. There are remains of some stonewalls visible on the surface along with some medieval pottery. From the second mound, located in the west, at a distance of about 50m were collected fluted cores, flakes, blades, lunates in chert, carnelian and quartz found on the surface of the area, near the foothill of the Rasulpur ridge. The other finds from the site comprised a bead of agate and potsherds of red ware. In-between the two mounds, there is a Baoli of medieval period. Both the mounds could be assigned to the medieval period. However, the microliths might have come from the ridge on which the prehistoric rock-shelters are located.

# V. PALAEOBOTANICAL AND POLLEN ANALYTICAL INVESTIGATIONS

The present report incorporates the work done at the Birbal Sahni Institute of Palaeobotany, Lucknow, on the botanical remains recovered from the excavations at Malhar and Charda in Uttar Pradesh.

## UTTAR PRADESH

**1.** MALHAR **(24° 59'16" N; 83° 15'46"** E), DISTRICT CHANDAULI

The samples of carbonized botanical remains were systematically collected from a wide range of deposits of pre-Iron and Early Iron Age Cultures (Periods I and II) by the application of water floatation. During the pre-Iron phase of occupation, datable from 1900 BC to 1700-1600 BC (cal. 2283-1639 BC), the agriculture was already established and expected to cover up the need of subsistence. The remains of crop plants have been found in association with weeds and other wild taxa. The most common crop was rice *(Oryza sativa),* while not as numerous as rice the other grains and seeds have been found as belonging to barley *(Hordeum vulgare),* two forms of wheat (bread-wheat - *Triticum aestivum* and dwarf-wheat - *Triticum sphaerococcum),* common millet (Panicum cf. *miliaceum),* lentil *(Lens culinaris),* field-pea *(Pisum arvense),* and khesari *(Lathyrus sativus).* During the following Early Iron phase (1600-800 BC), rice continued to dominate in the remains of food grains. Among the samples, rice, common millet, barley, wheat, lentil, field-pea and khesari are of the same kinds as from preceding phase. Introduction of new crops includes the remains of kodon-millet *(Paspalum* cf. *scrobiculatum),* jowar-millet *(Sorghum bicolor),* ragi-millet *(Eleusine coracana),* horse-gram *(Dolichos biflorus)* and green gram *(Vigna radiata).* A seed of oeliferous til *(Sesamum indicum)* was also encountered in highly mutilated and fragile state, which got destroyed in handling. Evidence is suggestive of advancement of agriculture in this subsequent cultural phase.

The associated remains of weeds and other wild taxa have been identified as belonging to wild jujube *(Ziziphus nummularia),* common-vetch *(Vicia sativa),* morning-glory *(Ipomoea* sp.), dhatura *(Datura* cf. *stramonium),* anjan-grass *(Cenchrus\ciliaris),* crowfoot-grass *(Dactyloctenium aegyptium),* flat-sedge (Cyperus sp.), bristle-grass *(Setaria* cf. *glauca),* sweet-clover *(Melilotus* cf. *indica),* sirwari *(Celosia argentea),* Khet-papra *(Oldenlandia* sp.), *anwla (Emblica officinalis),* hejurchei *(Leonotis nepataefolia),* makoi (Solaum nigrum), job's tear *(Coix lachryma-jobi),* etc. wood charcoals on anatomical grounds, belong to the trees of salai

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[1] Contributed by K.S. Saraswat and Chanchala Srivastava, Birbal Sahni Institute of Palaeobotany, 53 University Road, Lucknow-226007. The authors gratefully acknowledge their thanks to the excavators of these sites, for providing them an opportunity to collect the botanical remains for investigations.

*(Boswellia serrata),* bahera *{Terminalia bellerica),* bamboo *{Bambusa* sp.), sal *{Shoera robusta),* mahua *(Madhuca indica),* gular *(Ficus glomerata),* dhak *(Butea monosperma),* babul or khair *(Acacia nilotica* of *A. catechu),* sheesham *(Dalbergia* sp.), teak *(Tectona grandis),* dhaura (Lagerstroemia parviflora), and kandi *(Flacourtia* sp.).

**2.** CHARDA **(27° 56'45" N; 81° 36'40"** E), DISTRICT BAHRAICH

The carbonized remains of seeds and fruits collected from a wide range of cultural deposits datable from about 800/700 BC to AD 1100, reflect on an advanced agriculture being practiced at this site. The finds include the remains of the field-crops of rice *(Oryza sativa),* barley *(Hordeum vulgare),* bread-wheat *(Triticum aestivum),* dwarf-wheat *(Triticum sphaerococcum),* ragi-millet *(Eleusine coracana),* kodon-millet *(Paspalum scrobiculatum),* pigeon-pea *(Cajanus cajan),* chick/pea/gram *(Cicer arietinum),* khesari *(Lathyrus sativus),* lentil *(Lens culinaris),* field-pea *(Pisum arvense),* moth-bean *(Vigna aconitifolia),* cow-pea *(Vigna unguiculata),* black-gram *(Vigna mungo),* green-gram *(Vigna radiata),* kulthi *(Dolichos biflorus),* linseed *(Linum usitatissimum),* sesame/til *(Sesamum indicum),* and cotton *(Gossypium arboretum I herbaceum),* water-melon/*tarbuz (Citrullus lanatus)* was also grown for its luscious fruits.

Associated remains of weeds and other wild taxa, have also been identified as belonging to jujube *(Ziziphus* sp.), silk/cotton / semal *(Bombax ceiba),* crotalaria *(Crotalaria* sp.), crowfoot-grass (Dactyloctenium aegyptium), flat-sedge *(Cyperus* sp.), goose-grass *(Eleusine indica),* spikerush (Eleocharis sp.), sedge *(Fimbristylis* sp.),day-flower *(Commelina benghalensis),* kulfa *(Trianthema portulacastrum),* chaulai *(Amaranthus* sp.), *goose-foot (Chenopodium album),* indigo *(Indigofera* sp.), clover *(Melilotus* sp.), *Trigonella* sp. (no common name), common vetch *(Vicia* sativa), wild-oat *(Avena* sp.), anjan-grass *(Cenchrus* cf. *ciliaris),* Panic-grass *(Panicum* sp.), blue-grass *(Poa* sp.), alfa-alfa *(Medicago* sp.), purslane *(Portulaca* sp.), jacquemontia *(Jacquemontia* sp.) and basil *(Ocimum* sp.).

# VI. MUSEUMS

### 1. Salar Jung Museum, Hyderabad

Reorganization and re-arrangement of galleries on modern scientific lines conforming to international standards was taken up in phased manner. In the first phase fabrication of five galleries, i.e., paintings, glass, bronze, clock and courtyard galleries were taken up and completed. New lighting arrangements are in progress in respect of first three galleries.

Fabrication work in two galleries *viz.,* Japanese and Chinese galleries were attended to and the work is in progress.

Design sub-committee invited experts from all over India for the galleries of Indian, Japanese and Chinese collections.

Arrangements are being made to provide storage of artefacts in the museum on modern scientific lines.

The museum arranged some temporary exhibitions on the message of Mercy for Mankind, reflecting the Islamic architecture, calligraphy and the life of Prophet Mohammad; 'Splendours of Asia' from the Indian Museum collection, Kolkata; a special exhibition on Al Quran collections from the Salar Jung Museum to mark the museum formation day; on the prime collection of Tariq Ali Khan besides an International Exhibition from Germany on the 'Ornaments and Figures of Medieval Art'. In addition to these, two mobile exhibitions on the photographic reminiscences of Diwan Devdi, the old museum and on Salar Jung III, his collections and the monuments of the Kakatiya period were arranged. The museum also participated in an exhibition of oriental books and manuscripts connected with the life and work of Bairam Khan and his son Abdul Rahim Khan-e-Khana on the eve of five hundredth Anniversary of Bairam Khan in National Modern Art, New Delhi.

The museum also held workshops on art and culture apart from a few lectures on the Hollistic approach to dating with regard to the study of ancient history ; conservation and environment; tourism and culture ; Buddhism - philosophy and religion; Buddhist Culture in Leh ; Ladakh and a slide show on the paintings depicting Buddha's life. The museum also organized some special programmes for children on museum movement with a particular reference to the Salar Jung Museum. It also prepared CDs to highlight the museum objects. There were some video films to project art, architecture, culture and archaeology for children and general public.

To commemorate the one hundred and fifteenth birthday of Salar Jung III, the first memorial lecture on the pictorial art of Deccan

(from the sixteenth to the nineteenth century AD) was arranged. To mark this occasion, the museum also brought out a catalogue on the Persian Manuscripts.

The preservation and chemical conservation of the museum objects are being attended to regularly in the laboratory. During the year under reference, one thousand three hundred and sixty-seven objects of various categories including the miniature painting were treated chemically. In addition to these, deacidifications, lamination, repairs and binding of nine hundred eighty manuscripts and books were done during the period under review.

Under its developmental projects, its garden was improved by introducing a number of flower beds with seasonal and perennial flowers, ornamental plants, decorative mounds with grass, flower plants etc.

2. District Archaeological Museum, Nizamabad

A new district museum was set up in Nizamabad by the Department of Archaeology, Government of Andhra Pradesh.

## DELHI

3. Mirza Ghalib Memorial Museum, Ballimaran, Chandni-Chauk, Delhi

A portion of the Haveli of Mirza Ghalib at Gali Qasimjaan, Ballimaran, Chandni Chauk, was acquired for setting up of a memorial-cum-museum in honour of Mirza Ghalib. It was in a dilapidated condition. The structure was first conserved for setting up a memorial museum portraying different facets and achievements of the great poet. A diorama of Mirza Ghalib was also set up for the visitors. This memorial was inaugurated and thrown open to the public on the birth anniversary of Mirza Ghalib on 27/12/2000 by the Department of Archaeology, Government of Delhi, Delhi.

## GOA

4. Archaeological Museum, Old Goa

The damaged plaster of the museum was removed for patch plastering and painting was done by shell lime with yellow oxide powder matching the church of St. Francis of Assisi. A small room adjoining Gallery No.3, was repaired by deplastering and replastering, painting of walls, ceilings for making the same ready for display of antiquities. The worn-out floor of Gallery Nos. 2,3,4 and 5, was relayed by Cuddapah stone flooring. The wooden doors and Iron grills were applied fresh polishing and painting. The electrical switch room was slightly moved and fitted into the same wall and some space for display of the bronze statue of Albuquerque was made. Barricade in the form of Brass railings and chains, in Gallery Nos. 6, 7 and 8 were repaired with more additions provided as a safety measure as also to save the precious portraits and paintings from the visitors. The entire first floor Galleries 6, 7 and 8 along with wooden staircases were polished using wood varnish. Water purifier was installed in the museum.

## GUJARAT

5. Archaeological Museum, Lothal, Ahmedabad

The interior of the museum was painted. The introductory write-up on the museum was revised

and printed on Acrylic sheet. New write up for the showcases on the left side gallery was prepared and printed on Acrylic sheets for display. A theme panel on The Dock was prepared and displayed. The damaged model depicting the Acropolis was repaired. Four pots, two painted vases and two perforated jars were damaged due to earthquake that struck Gujarat on 26* January, 2001. The same were mended for display. The amenities for the visitors were improved by constructing a shelter, providing filtered water and making available the departmental publications.

## HARYANA

### 6. ARCHAEOLOGICAL MUSEUM, THANESAR, DISTRICT KURUKSHETRA

In order to display the objects found from the excavation of Harsha-ka-Tila, a museum was proposed to be set up in one of the *madrasa* of the Sheikh Chilli's Tomb. The hall where the museum was to be established was reconditioned by lime plastering, concreting, flooring, grill work, wood work in doors and windows and finishing the interior surface with lime-wash. In all, ten wall and four table showcases were prepared. The objects collected from the excavation were classified and chemically treated. Translites were prepared. The work of display of objects is in progress (pls. 115-118).

### 7. BHIMA DEVI MUSEUM, PINJORE, DISTRICT PANCHKULA

One hundred thirty-two sculptures and architectural members of Pratihara period, notable among them being Ganesa, Siva, Agni, Varuna, Uma-Mahesvara, Hari-Hara, Parvati, Lakshmi-Narayana, Mahisasuramarddini, Ishana, Yamuna, Surya, Indra, Ganga, Revanta, and mother-goddess were documented by Chander Pal Singh of the Department of Archaeology and Museums, Government of Haryana.

### 8. PANIPAT MUSEUM, PANIPAT, DISTRICT PANIPAT

Domestic and religious articles in wood, iron, brass, copper, terracotta, cloth, conch and bone, terracotta toys, pots and manuscripts of *Gita,* displayed in the Museum were collected by D.S. Malik of the Department of Archaeology and Museums, Government of Haryana.

## HIMACHAL PRADESH

### 9. ARCHAEOLOGICAL MUSEUM, KANGRA FORT, KANGRA

The sculptureshed at Kangra Fort was renovated to make it suitable for museum display. The work attended to comprised covering the verandah with stone masonry, grill work, providing/fixing doors and windows, plastering, pointing, providing polyvinyl flooring and distempering of the walls. The preparation of showcases, light-fitting etc. were completed. Translites were prepared for display. The display of object is in progress (pls. 119-121).

## KARNATAKA

### 10. ARCHAEOLOGICAL MUSEUM, AIHOLE, DISTRICT BAGALKOT

A porch was constructed at the main entrance of the museum building by using stone pillars and R.R. stone masonry to give an aesthetic appearance. The existing gallery was extended by adding new wooden showcases for displaying the sculptures.

Plates 115-116



115



116

*Archaeological Museum, Thanesar: inner view*

Plates 117-118



117



118

*Archaeological Museum, Thanesar*: 117, *inner view* and 118, *displayed objects*

Plates 119-120



119



120

*Archaeological Museum, Kangra:* 119, *general view* and 120, *displayed objects*

Plate 121



*Archaeological Museum, Kangra : displayed objects*

11. Archaeological Museum, Badami, District Bagalkot

Spot lights were provided in the galleries to highlight the sculptures.

12. Archaeological Museum, Bijapur, District Bijapur

Glass showcase was provided to the Mahakuteswara pillar inscription in Gallery 2 for proper safety. Masonry pedestals were prepared in the underground vault for reserve collection. Chain railing was provided to the displayed inscriptions in Gallery 3.

## MADHYA PRADESH

13. Archaeological Museum, Khajuraho, Chhatarpur

During the period under review, the museum arranged for background of antiquities, raw silk cloth for the show-cases. A big signboard was prepared and fixed at the north-west corner of the compound. The ground glass was also fixed in the showcases for the diffusion of the direct light on the displayed antiquities as well as to keep cleanliness in the show-cases. The old boards were repainted and refixed besides attending to the colour wash of museum building. One stone sculpture of Vamana of tenth-eleventh century AD was acquired from Shilpgram, Khajuraho and was duly accessioned.

14. Archaeological Museum, Chanderi, District Guna

This museum which was being organized since 1986, opened for public recently. The preparation of new galleries was underway and the plastering was also attended to besides progress was made in linking the isolated chambers, by providing suitable openings. Due to its location in an isolated place and for better security reasons, the museum is provided with flood-light to illuminate the whole campus. The stone masonry platforms were erected under the trees for the visitors as also to provide the strength to the trees. The museum display boards on granite ground with brass letters were prepared both in English and Hindi Languages. To provide historical and archaeological background of Chanderi and its adjoining area a write-up is prepared tracing its history from the early historical period upto the twelfth century. This write-up is engraved on sandstone slab covering an area of 3.85x0.60m and engraved letters were painted with permanent black ink. For publicity and awareness signages were provided at various strategic points. For betterment of the Museum's environs, landscaping was done in an open area in the Museum campus by erecting a retaining wall of low height to develop a terraced garden. A mono-block electric water-pump was procured for watering the gardens. Reorganization of galleries and display of reserve collection were also being done and three wooden pedestals were made for the purpose. Apart from these, some antiquities were acquired for Museum by GN. Srivastava of the Museum with the help of R.K. Sharma, local Tehsildar, Chanderi. The items include iron-sword with sharp, convex-cutting edge with complete hilt; Pata-sword-a long thin blade with gradually tapering pointed-end and a base fitted with a bracket type hilt. The pommel of the hilt is surmounted by a tapering spike which has a tang-button at the end. This is a ceremonial weapon. Hand loading old model guns variously called as Bhartal Bandook of Dabichi (total length - 134 cm); hand loading old model gun (total length

-124 cm). These four weapons belonged to the last zagirdar family of Chanderi which remained here since the time of Mughal emperor Aurangzeb. A stone inscription measuring 124x69x17 cm in Devanagari dated in Vikrama Samvat 1099 (AD 1042) referring to the construction of a Krishna Mandir during the reign of Harirajadeva of Pratihara family, was received from Ram Singh, Village Sarpanch of Thoban, Guna. The ruins of a temple existing in the Gargaz area of the village are known as Krishna Mandir among the villagers. The Harirajadeva of the inscription is known from the other inscriptions found at Rannod, Kadwaha and Chanderi. The Pratihara family might have been the local minor branch of the imperial Pratiharas. In one of these inscriptions the rulers of this family including Harirajadeva are referred to in connection with Chandrapur. This inscription is displayed on a new wooden pedestal. A life size image of Varaha incarnation of Vishnu in stone (173x77x77 cm) with carvings of various gods, goddesses, divine and semi-divine beings on the body appears to be very interesting, collected from a ruined temple site at Thoban. A *sati*-pillar in stone inscribed with a crude Devanagari inscription referring to the erection of this memorial by a son for his mother (who became *sati)* in VS 1545 during the reign of Rajadhiraja Gayasuddin, was brought to the Museum from Budhi Chanderi. The place name occurs in this inscription mentions Nasirabad. The *sati*-stone inscription was earlier noticed in the annual report of the Gwalior State Archaeology Department. Stone image of Ganesa and a door-sill (both from Budhi Chanderi) besides a fragmentary stone-inscription in Arabic/Persian were recovered.

15. ARCHAEOLOGICAL MI SKIM, GWALIOR, DISTRICT GWALIOR

During the period, the collection was enriched by acquiring three more stone sculptures including an inscribed stone slab, an alcove and a *gauripatta.* Besides, in the museum, damaged false ceiling was replaced with particle board ceiling in Gallery 1. Sign boards with information about the museum were installed at various important places of the city. During the desilting of Sarad Baoli metal implements comprising cannon balls, hilts of swords, pinnnacle of a temple, a water vessel, and daggers of medieval period and coins of Scindhia period were recovered and displayed. Photo documentation of all the museum antiquities was completed. A bilingual write-up on ten incarnations was prepared and affixed in Gallery 1.

16. ARCHAEOLOGICAL MUSEUM, SANCHI, DISTRICT RAISEN

For safety and maintenance of showcases, glass and brass railing along the two rows of wall showcases in the museum, were provided in Gallery 2 during the year under report. To provide adequate light as needed and also from aesthetic angle the tube lights of the ceiling were replaced with track light in Gallery Nos.l & 3. Coloured translite along with light box and laminated coloured photo blow ups of the important scenes of gateways of Stupa 1, Sanchi, were prepared and displayed in the galleries. A glowsign board was provided over the top of the museum building to attract visitors. Individual labels for the displayed objects on acrylic sheet were provided in all the galleries. General cultural board on Sanchi, both in Hindi and English was provided in the main

**Plates 122-123**



122



123

*State Museum, Bhubaneswar:* 122, *four armed Chamunda,* and 123, *four-handed Manasa figure*

hall in addition to the gallery-wise information on information board. The bilingual Museum boards were erected at the main public place in Sanchi in view of publicity and awareness. For maintenance and presentable appearance, the building was annually painted. For a beautiful garden in the area of the museum, two small lawns were laid and a variety of roses were planted. For adequate water supply to the garden a 4" boring was done. Steps were taken to expand Gallery 2 by providing Kota stone flooring, ventilators, exhaust fans, door shutter and paintings of walls and ceilings.

## MAHARASHTRA

17. CHHATRAPATI SHIVAJI MAHARAJVASTU SANGRAHALAYA (FORMERLY PRINCE OF WALES MUSEUM), MUMBAI

The museum acquired seventy-two antiquities during the year under report which include twenty-one bronzes from Bastar, two stone sculptures, sixteen gold and thirty-two silver ornaments apart from an oil painting from Russia. The museum also acquired about six hundred books and over two hundred periodicals from its library. Several lectures were arranged on the subjects like 'Power and Elegance - Manaku and Nainsukh - the Great Indian Painter's from a small Hill State. A five-day workshop on Mathura art was also organized in collaboration with the Department of Philosophy, University of Mumbai, conducted by the Jnana Pravaha, Varanasi. The museum also converted a small area into a children's gallery to hold exhibitions on a varity of themes every three months. The museum was also visited by the dignitaries during the year.

18. CENTRAL MUSEUM, NAGPUR

During the period, the museum acquired seven objects besides it also attended to the chemical treatment of displayed exhibits in Rajbhavan.

## ORISSA

19. ORISSA STATE MUSEUM, BHUBANESWAR

During the year under review, the state museum acquired two sculptures of Chamunda and Manasa in stone. The image of Chamunda in chlorite was recovered from Dharmasala, District Jajpur. This four-armed image holds a pot (of blood ?) in its existing upper right hand. She is adorned with a garland of skulls, seated on a corpse and in front of a jackal is found eating flesh. The appearance is ferocious with prominent teeth, hollow chin, sunken belly and open mouth. The features conform to the description in the *Devi-Mahatmya* (pl. 122).

Another image depicts Manasa in granite, seated on a *lalitasana* with right leg on an inverted lotus and the left crossed on the pedestal. She holds a *damaru,* encircled by serpent coil in the upper right hand while a *khapara* in the lower right, a trident in upper left and the lower left has a drinking pot. The deity is decked with *kirttimukha,* conical *prabhamandala,* ear-studs, necklace and an *upavita* (?). Thin drapery covers her legs down to the anklet. Behind her head there is seen a five-hooded snake (pl. 123). On stylistic consideration, the image could be dated to the tenth century AD but the provenance is not known.

20. ARCHAEOLOGICAL MUSEUM, RATNAGIRI, DISTRICT JAJPUR

During the year the inner side of the entire

museum building including the galleries were repainted and colour washed. The security lamp around the museum building were replaced by the new sodium vapour lamp fixtures. The huge Buddha heads displayed in Gallery Nos.l and 2 barricated by providing brass pillars with chains. The ceiling fans, lights etc., inside the museum building were replaced and repaired.

## TRIPURA

21. TRIPURA GOVERNMENT MUSEUM, AGARTALA

The museum acquired a bronze *mukha-linga* (13x11 cm) datable to *circa* ninth-tenth century AD from Nalchar, West Tripura through donation. This was collected by the Officer-in-charge, Melaghar Police station, West Tripura. The *mukha-linga* is carved with three images of Siva and one of Parvati on its four sides.

## UTTAR PRADESH

22. TAJ MUSEUM, AGRA, DISTRICT AGRA

Anti termite treatment was done in all the galleries of the Museum. Old labels of the exhibits were changed by providing bilingual labels. Keeping in view the organization of another wing of the Museum in the Eastern Naubat Khana, necessary false wall and lighting arrangement and wall show cases were made to display some original Mughal antiquities and photo blow-ups of the Badshahnama painting.

23. GOVERNMENT MUSEUM, MATHURA, DISTRICT MATHURA

The museum accessioned and classified sixty-nine objects of which seven are stone sculptures, one terracotta and sixty-one silver coins. Some of the notable sculptures are of a fragmentary Jaina Tirthankara Neminatha and Balarama from Mathura (pl. 124), medieval period; *ekamukha-Siva-Iinga* (pl. 125) and a serpanthood with coils (pl. 126), lotus flowers and buds from Umari village, Mathura, assignable to the Kushan period.

24. BHARAT KALA BHAVAN, VARANASI

The museum acquired two baluchari *saris* of nineteenth century AD; illustrated manuscripts of *Durga Saptasati* of AD 1773 ; illustrated leaves from *Ramayana* of early nineteenth century AD and *Bhagavat Katha* besides eleven literary materials.

## WEST BENGAL

25. KOCH BIHAR PALACE MUSEUM, KOCH BIHAR

Organization of two sculpture galleries and two other galleries in the former Durbar Hall are in progress along with the setting up of ethnological galleries in collaboration with the Anthropological Survey of India.

26. INDIAN MUSEUM, KOLKATA

During the period under report, the work of reconstruction and renovation of pre and proto-Historic gallery is under progress. The work of installation of air-conditioning is in the final stage at the Bharhut Gallery. The pedestal of the sculptures displayed in the verandahs of the first floor of the main museum building was encased with stone slabs after following modern technique of scientific preservation. Installation of video sets was done in the archaeological galleries. Overall renovation was undertaken in the Egyptian and the Gandhara galleries. The pedestal of the displayed

Plates 124-126


124


125


126

*Government Museum, Mathura:* 124, *Balarama,* 125, *ekamukha Siva-linga* and 126, *serpenthood with coils*

sculptures of the entrance hall, Gandhara gallery, Long gallery, Minor arts gallery and Bronze gallery were repaired and repolished along with the replacement of labels. Installation of a new gallery for the collection of the Ganesa, both Indian and trans-Indian variety by the Late Vasanta Chaudhury is under progress.

The acquisition of the Archaeological section of the Indian Museum was enriched by a stone image of Tara *of circa* tenth-eleventh century, an eighteenth century metal image of Vishnu and a collection of one hundred and one pieces of Indian and trans-Indian Ganesa images in different materials like porcelain, terracotta, wood, bronze, copper, brass, crystal and glass. All these items were received as gifts from Annadashankar Ray, ICS; grandchildren of Late Ambica Charan Ukil and late Vasanta Chaudhury.

A seminar and exhibition of *Tiger through the age* was held in the museum exhibition hall, organized jointly by the Indian Museum and Pugmark. An interstate exhibition on *Splendour of Asia* was also held at the Salar Jung Museum, Hyderabad. Thirty-five archaeological objects were sent to the said exhibition. A two days seminar on *Rupa and rasa in Indian art* was held at the museum exhibition hall in connection with the celebration of the Museum foundation day. In this connection an exhibition entitled *Beauty and bliss* on Indian sculptures and paintings held at the same venue. *Kumbha mela exhibition* was organized by thirty-nine replicas of archaeological antiquities of Allahabad. An exhibition entitled *Rupasi Bangla* was held at the Museum exhibition hall in connection with the *Viswa Banga Sammelon* held at Kolkata. International exhibition on *Four great civilizations of the world (Indus civilization)* was held at Tokyo and Nagoyo, Japan. Seven archaeological objects from the Archaeological section, Indian Museum were sent to the said exhibition.

27. HAZARDUARI PALACE MUSEUM, MURSHIDABAD

Three new galleries were organized and thrown open to the public during this year. Of these two are periodical galleries and one is archival gallery. After distempering the walls of the periodical galleries and retouching the original designs on them, the dining and dressing tables are displayed in the two galleries with their all accessories (pLs. 127-128). These are encased in perspex-sheet showcases. Coir carpeting of the floors of these two galleries was done along with the fixing of wooden-railed barrier around the exhibits for security measures. The archive gallery duly furnished with hexagonal central showcase and other table and slanting showcases was thrown open to the public and in this gallery were exhibited archival, administrative, personal documents and records which are of enough historical interest.

The exterior surface of the walls displaying the portraits of Nawabs, committee room, billiard room were painted with colour paints and wooden pedestal was prepared for displaying porcelain and cut glass objects. Old plastic labels were replaced by new labels and write-ups prepared in perspex sheet for the exhibits in the galleries. Standard brass labels were also fixed for the paintings in the galleries. The ceiling of armoury galleries was repaired and false ceilings were provided. Listing and documentation of records, *farmans,* objects/ antiquities were done along with the cleaning of objects and paintings.

Plates 127-128



127



128

*Hazarduari Palace Museum, Murshidabad : general view*

In the library of the museum, fumigation of rare books was done along with the binding and lamination of records , maps, important *farmans,* etc. For safety and security, restoration of wooden racks with glass casing was done. Anti-termite treatment of the library room, record room and reserve collections was also attended to regularly.

As a part of audio-visual aids for the visitors, two coloured televisions were installed in the central landing staircase room besides preparing a compact disc to introduce the museum.

World Heritage Week from 19-25'" November, 2000 was celebrated in the Museum in a befitting manner with a view to educate the people about their rich cultural heritage. Photo exhibition, cultural programme, drawing competition, etc. were also held to mark this occasion.

Two bilingual folders in English and in Bengali highlighting the museum were brought out.

# VII. ARCHITECTURAL SURVEY

TEMPLE SURVEY (NORTHERN REGION)

The Temple Survey (Northern Region) under K.K. Ramamurthy, resumed the survey of brick/terracotta temples in north India, in phased manner in the Madhya Pradesh region. The detailed exploration, study and documentation work were undertaken on the excavated and standing monuments at Pawaya, Dihwara, Karsua, Khajuraho and Kherat all in Madhya Pradesh; and the temples at Rajim, Seorinarayana, Sirpur, Kharod, Palari, Dhobini, Boramdeo and Nawagaon in Chhattisgarh area.

TEMPLE SURVEY (SOUTHERN REGION)

L.S. Rao, assisted by S. Ashok Kumar, A. Palanivel, K.Ravikumar, T.S. Balasubramanian, P.Venkatesan and G. Masilamani, carried out survey of Chola temples in Mandya and Coorg districts of Karnataka under the project work. In both the districts as many as nineteen (in Mandya fourteen and five in Coorg) temples were taken up for a detailed study to ascertain their association with the Chola authorship. But, it was observed that none of these temples bear any inscriptional evidence of the Chola period. However, the study revealed on stylistic grounds that the following temples have betrayed the architectural influence of the Chola style.

| *Temple/Village* | *Taluk* |
|---|---|
| Amrutesvara Temple, Marehalli | Malavalli |
| Narasimha Temple, Marehalli | -do- |
| Ruined Jaina Basati, Cholasandra | Nagamangala |
| Aravindayayaki Temple inside Lakshaminarayana Temple Complex, Tonnuru | Pandavapura |
| Krishna Temple, Tonnuru | -do-. |
| Three Jaina Basatis, Mullur | Somvarpet |
| Parasuramesvara Temple, Doddakodligrama | -do- |

| ***Temple / Village*** | ***Taluk*** |
|---|---|
| Agastesvara Temple, Balmuri | Srirangapatna - |
| Ramadev Temple, Kirangpur | do- |

Most of these temples belong to *alpavimana* style without *sukanasi* category of Dravida Vimana style. These temples are ascribable to the eleventh- twelfth century AD.

A significant discovery of these field surveys is however, the bronze idols of Venugopala, Rukmini, Satyabhama, Ramanujacharya, Desikacharya and Lakshmi, which are still under worship in the Krishna Temple at Tonnuru in Mandya district. They are all *utsava-bheras.* Among them, on stylistic ground, the idols of Venugopala, Satyabhama and Rukmini may be ascribed to the late Chola period, i.e., thirteenth century AD, whereas, the remaining bronze idols belong to the Vijayanagara period.

The two-handed Venugopala stands in *tribhanga* on a circular *padmapitha,* both the hands are displayed in the act of playing flute. The two-handed Rukmini stands in *dvibhanga* on a *padmapitha* with a lotus bud in her left hand. Similarly, the two-handed Satyabhama in *dvibhanga* stands on *padmapitha* and holds a *nilotpala* in her right hand. All the three images are tastefully ornamented.

BUILDING SURVEY PROJECT (NORTH)

The Building Survey Project undertook the study of Buildings at Agra region like gateways, *have I is,* houses, temples and *masjids* etc. These were surveyed and documented under the direction of O.N. Chawhan, assisted by VS. Badiger, Sudhir Kumar and Jatinder Kumar.

During this survey it was observed that there are some *burgees* still existing on the banks of River Yamuna . The *burgee* at Katra Wazir Khan is one among them. It is on the right side of Chini-Ka-Rouza just 100 m away. The reference from various sources stated the presence of a garden named "Zohra garden" or 'garden of Babar's daughter'. Today, the well and pleasure houses etc. are totally in ruined state (pl. 129). Only the double-storeyed octagonal *burgee* is clearly visible at this spot. Constructed of *lakhauri* bricks and red stone, this structure is flat-roofed with *chhajja,* rested on carved brackets. The beauty of the burgee is enhanced by its pointed arches and pillars.

Another double-storeyed building of Aurangzeb's time was located at Belanganj, on the right bank of Yamuna. Aurangzeb built it in June, AD 1659 after his victory over Darashikoh. So, it is a commomorative building, termed as "Mubarak Manzil". The oblong shaped building is rectangular in plan with a fine octagonal tower at each corner, surmounted by a pillared cupola. In the ground floor there is a verandah covered by roof on pillars in late Mughal style. Presently it is known as "Rai Bahadur Seth Tarachand-ki-Kothi."

The *haveli* of Darashikoh, constructed of *lakhauri* bricks and lime-mortar, has rectangular plan on a raised platform approximately 8 feet. It has a flat roof with a big hall. It's interior surface is having fine Mughal plaster and panel paintings.

**Plates 129-130**



129



130

*Katra Wazir Khan* : 129, *burgee and ruins of Zohra garden* and 130, *Motiganj: Darashikoh's haveli*

The frontal view of the building was marked with plain arches in row, having floral decoration (pl 130).

The impressive arch gateway opening towards Kinari bazar, a market place (presently known as Subhas bazar) is locally called as "Chaubeji-ka-phatak". Constructed of *lakhauri* bricks and fine Mughal plaster, it is remarkable for the architectural features. The wooden heavy door is built with heavy vertical and horizontal rafters. *The phatak* is decorated with paintings of flora and fauna in Mughal style. The upper floor of the *phatak* is now used as a residence. There are *jharokhas* on either end at the upper level—a characteristic of royal residence and is well preserved. This is a very remarkable specimen of the seventeenth century AD.

"The *haveli* of Islam Khan Rumi", located on the south side of Taj Road, about half way between the fort and the Taj, is now in ruins. It was built of red sandstone. Only some of it's tower and a portion of the empty cell of the walls survived today. But keeping in view its large size, loftiest and noblest looking features, this structure near Agra is a notable place to visit.

"The *haveli* of Gajsingh" at Pipal mandi was built by Rajput Gajsingh, son of Suraj Singh, king of Jodhpur. It is locally called "Kalamahal". This impressive *haveli* is now occupied by "Indra Bhan Girl's High School". With many new additions, modifications and sub-divisions, at present, it is difficult to imagine the original character of the building, but certain architectural members point to the later Mughal architectural features.

The Tajganj, also called 'Naharganj', with lofty arch gateways, compound walls, Katras and houses of that era, is now in ruins. The *lakhauri* brick arch gates are called Katra Umarkhan, Katra Phoolan, Katra Reshom and Katra Jogidas, even today, these are in good condition, with Mughal plaster. The *phatak* is a tall structure with wide gates and deep multifoil arched openings of Shahjahani style, and side rooms for guards. It served as the main entrance to this locality. The house of G.L. Seth built of fine *lakhauri* brick masonry, white lime-plaster with Shahjahani style arched-doors, open arches, balcony at the first floor are perhaps the remnants of the seventeenth century.

The "Khan-Khanan-Katra", situated in mall-ka-bazar in close vicinity of Shahi Masjid, named after Abdul Rahim Khan Khanan, a famous poet and warrior of Akbar's Darbar, has arched entrance gateway built of *lakhauri* bricks and red sandstone. The facade of the walls bears stone ashler masonry with decoration such as leaves with stylistic small arches in Mughal style. This is flanked by *small jharokha 's* on both the sides. The projected *chhajja* of the gateway appears to be supported by the brackets carved underneath. It is also a double-storeyed structure, the upper storey is presently occupied.

The "Shahi masjid", situated in front of Khan Khanan Katra, probably of the time of Akbar, i.e., AH 994(AD 1584) as mentioned in a modern Urdu inscription, inscribed on a wall. It was built on a raised platform of *lakhauri* bricks with red sandstone in rectangular plan. It has three archways opening into a big hall. The middle dome is larger than the others, the entire buildings have fine plaster. The facade contains floral and geometrical designs, along with false decoration of small arches.

Plate 131



*Ravat pada: Radha-Krishna Temple*

Plate 132



*Sadar bhatti: Dauji Mandir*

Plate 133



*Sadar bhatti: Dauji Mandir*

"Akbar Masjid" of Kinari Bazar is another building of Akbar's period, built of red stone. It has seven archways and wide open space with a *hauz* (water tank) in front. It has twenty-four red sandstone pillars, which are carved with leaf design on the capital. The facade is decorated with foliage and stylistic small arches.

The projected *chhajja* is placed on the carved brackets. The frontal wall at the corner is having octagonal tower with a large dome in the centre.

"Hijdon-ki-Masjid", situated in Loha mandi is built of *lakhauri* bricks and red sandstone. Akbar built it in memory of an unuch Yatim Khan, who was a spiritual personality called as Mukhannissan. It has open space and *hauz* in front of it as similar to Akbari masjid. The facade is decorated with floral design in Mughal style. The plane arches, *chhajja,* octagonal tower, and domes are some of the features of Mughal style found depicted in this mosque.

Akbar's Church, located in the Wazirpur road, in close vicinity of St. Peter's church, was built in red sandstone with three side entrance doors to the hall ignoring east. The walls are having the wide *chhajja*. On the right side, there are some burials of old priests which belong to the eighteenth century AD.

"The Radha-Krishna Temple" of Ravat pada is a historic temple of great architectural importance. It was built in *lakhauri* bricks probably in the eighteenth century AD. The small arch door is fully decorated with beautiful small sculptures. The jambs and lintel are carved with lord Krishna's *leela* showing his childhood days besides other gods. The pillars and brackets in the front portion of the first floor balcony are decorated with male and female deities bearing child, followed by musicians (pl. 131) The interior of the wall and niches are carved with Krishna's *leela* showing his childhood.

The Dauji Mandir of Sadar Bhatti Chauraha is another beautiful temple of the same period, built of ashler masonry of buff and red sandstone. The front facade is decorated with beautiful carvings showing floral, faunal and human,figures etc. (pl. 132). Both the *dvarapalas* are holding *chamara.* Here every piece of stone is decorated with floral and other carvings. The Shahjahani style pillars of arches were retained by the artist, though it was constructed in the modern period (pl 133).

# VIII. PRESERVATION OF MONUMENTS

## MONUMENTS OF NATIONAL IMPORTANCE

### AGRA CIRCLE

1. AGRA FORT, AGRA, DISTRICT AGRA

At Anguri Bagh, the conservation of red sandstone was done by pointing and replastering it. The old and decayed red sandstone flooring in the northern verandah of Jahangir Mahal was restored in addition to the water channel in lime-plaster located towards the southern passage. The decayed plaster of the ceiling of Diwan-i-Am complex was removed and re-plastered in special lime-mortar and the decayed plaster in the corridor between Diwan-i-Am and Diwan-i-Khas was attended to by replastering it. The broken marble *jali* of the Musamman Burj was replaced by new one matching the original. Conservation of Birbal's house was attended to by underpinning, pointing and replacing the decayed plaster. Missing part of red *sandstone jali* of Phansi Ghar was replaced by new ones matching the original.

2. DHAKRI-KA-MAHAL, AGRA, DISTRICT AGRA

The monument was provided with boundary wall with iron grill railing over it. Conservation was attended to by providing stained cement pointing of facade stone replacing decayed plaster of walls and ceilings and by providing lime-concrete flooring all around the monument.

3. FIROZ KHAN S TOMB, AGRA, DISTRICT AGRA

The work of underpinning the boundary wall and replacement of decayed concrete roof was Carried out. The broken and missing *chhajja* were replaced.

4. GROUP OF MONUMENTS, FATEHPUR SIKRI, DISTRICT AGRA

In continuation of the previous year (*1999-2000,* pp.259-261), the incomplete work of providing pathway along the wall leading from Diwan-i-Am to Gadha Gate was completed. The work of providing red sandstone flooring along the eastern corridor in Diwan-i-Am was taken up and completed. The cracks developed in the domes of the chhatris of Jama Masjid were also filled Up. The work of removing the debris and sorting out the carved architectural members of red sandstone at Hakim House is in progress. The broken *jali* works at Turkish Sultana's house were repaired. The exposed structures at Bir Chhabili Tila was conserved by pointing and underpinning . A wall in front of the Buland Darwaja was provided after removing encroachments. The restoration of missing and damaged portion of the Treasury was also done.

5. JAGNER FORT, JAGNER, DISTRICT AGRA

Fencing all around the archaeological area was provided.

6. KALA GUMBAD NEAR CHINI-KA-ROUZA, DISTRICT AGRA

The decayed and peeled off plaster of wall and dome was replaced and underpinning of wall was carried out.

7. KANCH MAHAL, SIKANDARA, DISTRICT AGRA

The underpinning and restoration of dilapidated arches in the plinth were carried out.

8. MARIAM'S TOMB, SIKANDARA, DISTRICT AGRA

The monument was provided with stone pathway and red sandstone apron all around.

9. RAM BAGH, AGRA, DISTRICT AGRA

Reconstruction of the remaining portion of the boundary wall near the gate was completed. The work of providing stone pathway was also taken up and stone water drainage was provided.

10. ROMAN CATHOLIC CEMETERY, AGRA, DISTRICT AGRA

The collapsed portion of the compound wall was reconstructed.

11. SMALL MOSQUE IN THE CHURCH OF MISSIONARY'S COMPOUND, NEAR SIKANDARA, AGRA, DISTRICT AGRA

The conservation of the mosque was attended to by underpinning, pointing and plastering.

12. TAJ MAHAL, AGRA, DISTRICT AGRA

The restoration of decayed red sandstone panel with relief work and missing inlayed black and white marble of panels in the plinth of outer facade of main gate was completed. The parapet wall and rear wall of main mausoleum were plastered with special lime-mortar. At the facade of the main mausoleum, the work of relaying missing inlay pieces was completed besides the work of pointing the gaps and joints of eastern Naubat Khana was attended to.

Also the work of replacement of decayed moulded red sandstone of the niches in the *dalan* located to the east of the main entrance gateway was completed during the period under report.

The broken and damaged marble fountains in the tank in front of the Mehman Khana was replaced and the ornamental head of the *muttakas* of riverside railing is being replaced. The laying of Kharanja pathway in front of locker room near eastern gate was completed besides the replacement of decayed red sandstone flooring of eastern Naubat Khana. At the Gaushala, the work of underpinning and plastering of collapsed portion is under progress.

13. TOMB OFIKLAS KHAN, DISTRICT BADAUN

In continuation of the previous year *(1999-2000,* p.263), the work of re-plastering the soffit of the tomb was completed.

14. COL. GARDNER'S TOMB, CHHAONI, KASGANJ, DISTRICT ETAH

Conservation of tomb was attended to by pointing, underpinning and restoring the plaster.

**AURANGABAD CIRCLE**

## MAHARASHTRA

15. AJANTA CAVES, AJANTA, DISTRICT AURANGABAD

An exit with collapsible gate and lock system adjacent to the entrance in U.C.R. masonry matching the original was provided.

16. BIBI-KA-MAQBARA, AURANGABAD, DISTRICT AURANGABAD

A dwarf wall with barbed-wire fencing on the front side of the monument was constructed besides painting the grill gate. Minor repairs to Hati Khana were also attended to.

17. THATE NAHAR, AURANGABAD, DISTRICT AURANGABAD

The bulged and out-of-plumb water pipe line was restored to its original position in UCR masonry near river bridge.

18. DAULATABAD FORT, DAULATABAD, DISTRICT AURANGABAD

The construction of dwarf wall with barbed-wire fencing was completed. Stone pathway was provided to from second gate to the Chandminar and around Sarasvati Well besides carrying out desilting and levelling.

19. ELLORA CAVES, ELLORA, DISTRICT AURANGABAD

A retaining wall was constructed in front of the Caves 12 to 15 in U.C.R. masonry. A parapet wall was also raised from Caves 6 to 10 and was provided with G.I. Pipe railing in three rows.

20. GHRISHNESVARA TEMPLE, ELLORA, DISTRICT AURANGABAD

Provided G.I. Pipe railing around the temple besides attending repairs to the Bhosle's Chhatri, projected *chhajja* and side minarets.

21. MALIK AMBER'S TOMB, KHULTABAD, DISTRICT AURANGABAD

Reconstruction of fallen *chhajja* and side minarets in R.C.C. was completed as per original. Fallen and missing compound wall was also restored to its original position.

22. LALPETH MONOLITH, CHANDRAPUR, DISTRICT CHANDRAPUR

Construction of compound wall around the monument was completed.

23. MAHAKALI TEMPLE, CHANDRAPUR, DISTRICT CHANDRAPUR

Stone pavement around the temple was provided to.

24. PANHALA FORT, PANHALA, DISTRICT KOLHAPUR

The rank vegetation was removed from the outer portion of Naikinicha *sajja.* The hidden structures were exposed at the eastern side by clearing the debris. The decayed lime-plaster was removed and the roof was replastered with new fresh plaster of cement. The area around the monument was levelled and approach road was provided.

25. SION FORT, SION, DISTRICT MUMBAI

Provided M.S. Grill to the verandah attached to office building with minor repairs and a suitable colour coat was applied on the interior.

26. PANDAVALENA CAVES, NASIK, DISTRICT NASIK

Construction of retaining wall was completed from Caves 1 to 10. Flight of steps in rubble stone masonry was provided to on the pathway from Caves 11 to 16.

27. KARLA CAVES, KARLA, DISTRICT PUNE

A retaining wall around the caves was provided.

28. RAIGAD FORT, RAIGAD, DISTRICT RAIGAD

The structural repairs like underpinning, watertightening, pointing, etc. were carried out at Shivaji Maharaj Samadhi. The area around the Samadhi was levelled and plastered. The weathered plaster from top of dome of Samadhi was replaced with fresh plaster in combination of lime mortar. The *kalasa* of the dome was also repaired. A polished granite stone was laid on the Samadhi.

Lime-concrete was provided to the roof of the Dharmashala and side arches were restored with new stones.

The sunken and damaged flooring of toilet block of queen's palace was replaced by lime-concrete. The outer walls were plastered and mild steel grilled window was repaired.

Concrete pathway was provided to from Mahadarwaja to Hati Tank and parapet wall was erected on both the sides of the pathway. Water-tightening was done to the roof of the Mahadarwaja. Rock-cut drains were provided to wherever necessary.

29. ELEPHANTA CAVES, ELEPHANTA, DISTRICT RAIGAD

The ground in front of the caves was suitably landscaped by raising three platforms at different levels. The roof of booking counter was provided with new Mangalore tiles. Painting and colour wash including stone flooring was done inside the office. The G.I. Pipe railing was provided in front of Cave 4. The existing drains were cleaned and given new concrete base. The much damaged and uneven flooring of Caves 1 and 3 was laid with cement-concrete. The museum building was repaired and plastered from inside and also by providing double coat of oil paints.

30. ALIBAG FORT, ALIBAG, DISTRICT RAIGAD.

The fortification wall was repaired by undertaking underpinning, pointing and replacing the missing stones.

31. JANJIRA FORT, DISTRICT RAIGAD

The rank vegetation was removed in and around the fort area. The flag-post was stretched by P.C.C.

BANGALORE CIRCLE

**KARNATAKA**

32. CHANDIKESVARA TEMPLE, HAMPI, DISTRICT BELLARY

The dead waterproof course on the roof, masonry supports given to the broken beam and bulged-out walls were removed. The dilapidated and out-of-plumb structure was carefully dismantled and reconstructed to plumb as per original by providing a strong bed of cement-concrete. The broken pillars were mended by using non-corrosive stainless steel rods and epoxy resins. The roof was watertightened by providing a thin course of lime-mortar mixed with waterproof compound.

33. GUARD'S HOUSE NEAR ELEPHANT STABLE, HAMPI, DISTRICT BELLARY

The dead cement-concrete flooring was re-moved and relaid in combination mortar mixed with stone-jelly. The dead lime-plaster of the wall surfaces and ceiling was scraped and re-plastered in lime-mortar as per original. An iron grill gate was provided at the entrance.

34. PATTABHIRAMA TEMPLE, KAMALAPUR, DISTRICT BELLARY

The encroachments at the entrance of the temple were removed and the area was levelled and fenced by using crimped wire mesh fixed to 'L' angle posts.

**35. SHRINE TO THE EAST OK HA/.ARARAMAC IIANDR.Y** TEMPLE, KAMALAPUR, HAMPI, DISTRICT BELLARY

The debris of fallen and disturbed structures in the form of small shrines and pillared *mandapas* were removed for careful exposure and the structures were reconstructed as per original by utilizing the available architectural members.

36. TREASURY BUILDING TO THE NORTH-WEST OK ZANANA ENCLOSURE, KAMALAPUR, HAMPI, DISTRICT BELLARY

The dead lime-concrete floor of the structure was carefully removed and a fresh flooring in double dressed granite slab was provided to over a layer of lime-concrete. The joints were pointed. The dead plaster of the roof and the walls were raked out and fresh plastering was done in finely grained lime-mortar. The damaged stucco work of the parapet wall was mended as per original pattern using brick of required size and lime- mortar.

37. KALLESVARA TEMPLE, HIREHADAGALI, DISTRICT BELLARY

The accretionary rubble walls covering the *nandi-mandapa* was removed and reconstructed by using original architectural members.

38. VISHNU TEMPLE (VARAHA TEMPLE), VENKATAPURA, HAMPI, DISTRICT BELLARY

The dead waterproof course over the roof of the temple was removed and the disturbed, fallen portion of the temple and the cloister *mandapa* were documented, dismantled and the architectural members were stacked carefully. The temple was reconstructed as per original by providing a strong bed in cement-concrete. The original broken members were mended and strengthened. Wherever necessary new members like beams, capital and roof slabs were provided to replace the missing ones. The roof of the main shrine and the cloister *mandapa* was watertightened by providing a layer of brick jelly mixed with waterproof combination mortar. The entrance steps were relaid as per original. The sunken stone pavement of the courtyard were relaid over a strong sand bed after levelling the ground. The masonry supports provided to the broken beam of the *mahadvara* was removed and the beam was strengthened by inserting T section girder and mended using epoxy resins.

39. JAINA TOMBS, MUDABIDRI, DISTRICT **CHIKKAMAGALUR**

A dwarf wall enclosing the tombs was constructed in laterite bricks over a strong foundation in cement-concrete.

**40. VIDYASANKARA TEMPLE, SRINGERI, DISTRICT CHIKKAMAGALUR**

The undulated and sunken flooring of the courtyard was relaid over a sand bed. The joints were pointed

41. SAMPIGESIDDESVARA TEMPLE, FORT CHITRADURGA, DISTRICT CHITRADURGA

The leaky roof was watertightened by providing a fresh waterproof course in lime-mortar, mixed with waterproof compound. A stone slab pavement was provided around the temple.

42. FORT AND LARGE MASONRY ELEPHANTS, MERC ERA, DISTRICT COQRG (KODAGU)

The fallen portion of the fort wall near the *jali* was completely dismantled and reconstructed as per original by providing a strong bed in cement-concrete. The inner and outer parapet wall of the fort wall was strengthened by grouting the joints in lime-mortar.

43. MALLIKARJUNA TEMPLE, KUTUVATTI, DISTRICT DAVANGERE

The disturbed enclosure wall was reconstructed in size stone masonry. The stone flooring over sand bed was provided around the monument. The leaky roof was watertightened by providing a course of lime-mortar mixed with waterproof compound.

**44. MUSAFIRKIIANA AND HONDA, SANTHEBENNTR,** DISTRICT DAVANGERE

A cracked beam of the Musafirkhana was mended by inserting T section girder with epoxy resin. The leaky roof was watertightened. The undulating area around the monument was levelled.

45. MAHA-STUPA, KANAGANAHALLI, DISTRICT **GULBARGA**

The broken architectural members of the stupa were identified and mended by introducing non-corrosive stainless steel rods with epoxy resin. The work is in progress.

46. GROUP OF MONUMENTS, SRAVANABELAGOLA, DISTRICT HASSAN

The dead plaster over the leaky roof of the Kattale Basadi. Parsavanatha Basadi and Chandragupta Basadi was removed. A fresh waterproof course in lime-mortar mixed with waterproof compound was provided to the roof of the above monuments. The damaged portion of the parapet wall and the merlons were repaired as per original

47. ADINATHA BASADI, KAMBADAHALI.I, DISTRICT MANDYA

The out-of-plumb Adinatha Basadi was dismantled after proper documentation. The structure was reconstructed to plumb as per the original elevation. The roof was watertightened.

48. ANCIENT PALACE SHE (LAI. MAHAL), SRIRANGAPATANA, DISTRICT MANDYA

To prevent erosion of the site a supporting masonry wall in heavy stone blocks was constructed on the southern side and south-west corner. A barbed-wire fencing was provided with 'L' angle iron posts fixed over dwarf brick masonry wall.

49. DARIA DAULAT BAGH, SRIRANGAPATANA, DISTRICT MANDYA

On the northern side of the protected area, a fencing in crimped mesh was provided with 'L' iron angle fixed over a dwarf wall.

50. LAKSHMINARASI.MHA TEMPLE, MAREHALLI, DISTRICT MANDYA

The old and decayed plaster of the walls of the Yagasala and Paksala was raked away and replastered in combination mortar. The damaged wooden door of the northern entrance was replaced.

51. NAMBINARAYANA TEMPLE, TONNUR, DISTRICT MANDYA

The fallen portions of the merlons on the outer

*prakara* wall was reconstructed as per original in lime-mortar.

52. RANGANATHASVAMY TEMPLE, SRIRANGAPATANA, DISTRICT MANDVA

The stucco work of the Vimana of the main shrine was strengthened by using combination mortar.

53. SPOT WHERE TIPU'S BODY WAS FOUND, SRIRANGAPATANA, DISTRICT MANDYA

Stone veneering in granite slab was fixed to the eastern and western portions of the enclosure wall.

54. KEERTINARAYANA TEMPLE, TALKADU, DISTRICT MYSORE

The dismantled *adhishthana* of the *mahadvara* was reconstructed over a strong foundation in size stone masonry with cement-mortar by utilizing the original architectural members. Wherever necessary steel clamps were introduced between the architectural members to provide extra strength to the structure.

55. LAKSHMIKANTHA TEMPLE, MULLUR, DISTRICT MYSORE

The out-of-plumb and bulged-out portion of the temple was completely dismantled and reconstructed by providing a strong foundation in cement-concrete. The broken roof slabs were replaced and the roof was watertightened by pointing the joints and providing a waterproof course in lime-mortar mixed with brick-jelly.

56. SREEKANTESVARA TEMPLE, NANJANGUD, DISTRICT MYSORE

The broken beams, capitals of the northern inner cloister *mandapas* were strengthened by inserting non-corrosive stainless steel clamps and mended by using the epoxy resings. The stucco figures of the Chikkagopura on the northern face was strengthened by using finely grained lime-mortar.

57. JAINA TEMPLE, BANDALIKE, DISTRICT SHIMOGA

The ruined entrance *mandapa* was dismantled and reconstructed as per original after providing a foundation over a cement-concrete bed. The out-of-plumb outer veneering of the *navaranga* was removed and reconstructed.

58. KEDARESVARA TEMPLE, BELLIGAVI, DISTRICT SHIMOGA

The out-of-plumb *garuda-stambha* was brought to plumb after strengthening the base. The fallen portion of the enclosure wall was reconstructed as per original to a length of 40m.

59. TRIPURANESVARA TEMPLE, BELLIGAVI, DISTRICT SHIMOGA

The out-of-plumb *mandapa* was dismantled and reconstructed as per original over a strong foundation and the roof was watertightened.

60. MALLIKARJUNA AND RAMESHVARA TEMPLES, NADAKALASI, DISTRICT SHIMOGA

The leaky roof was watertightened by removing dead lime-concrete and providing a fresh layer of *surkhi* in lime-mortar.

61. RAMESVARA TEMPLE, KELADI, DISTRICT SHIMOGA

The area around the temple was levelled and stone pavement was provided over a sand bed. The joints were recess-pointed.

The chemical treatment work was taken up on the temple for the removal of micro-vegetational growth, dust, dirt and patches of lime coating from the exterior sandstone and lime plastered surface. 2-3% aqueous ammonia solution mixed with non-ionic detergent was used for the removal of biological growth using soft brushes while 2% acetic acid solution was used for the cleaning of lime-wash. Fungicidal treatment was given using 2% solution of sodium pentachlorophenate followed by preservative treatment. The plastered surface was preserved with pidicote WRS and 1% PMMA solution in toluene was used as preservative coating on the stone surface. The work was completed.

The interior and exterior walls, pillars and ceiling of *mandapa* of Siva shrine, Chandikesvara shrine, *Nataraja-mandapa, Mani-mandapa,* Bhavanesvara shrine *maha-mandapa* of Amman shrine and *Kalyana-mandapa* were chemically treated for the removal of soot and oily accretions. These were removed mechanically using dilute acetic acid solution. The cleaned surface was preserved by fungicidal treatment using 2% sodium pentachlorophenate and 3% solution of PMMA in toluene.

## BHOPAL CIRCLE

## MADHYA PRADESH

62. BUDDHIST CAVES, BAGH, DISTRICT DHAR

Watertightening of the floor of Cave 7 by laying lime-concrete matching with rock surface was completed.

63. DARYA KHAN'S TOMB, MANDU, DISTRICT DHAR

Barbed-wire fencing with angle iron posts was erected around the protected area from encroachment.

64. JAHAZ MAHAL, MANDU , DISTRICT DHAR

Stone blocks were procured from Zeerabad quarry and transported to the site for replacing the damaged wooden railing with stone railing.

65. ADAMGARH ROCK-SHELTERS, HOSHANGABAD, DISTRICT HOSHANGABAD

The construction of dwarf boundary wall in CR stone masonry with cement-mortar near the entrance was carried out.

66. ROCK-SHELTERS AND PAINTINGS, BHIMBETKA, DISTRICT RAISEN

The approach pathway with R.R. masonry leading to Cave ASI-28 is in progress.

67. BI DDHIST MONT ME.NTS AT BARHAT, DISTRICT REWA

The scientific clearance and resetting of northern side of the main monastery were carried out. The total scientific clearance work was carried out before resetting 1023 cu.m. Total quantity of resetting the monastery in dry masonry was 214 cu.m. The work was completed. The original approach path leading to the main stupa was reconstructed with R.R.stone masonry in lime-mortar.

## CHANDIGARH CIRCLE

## HARYANA

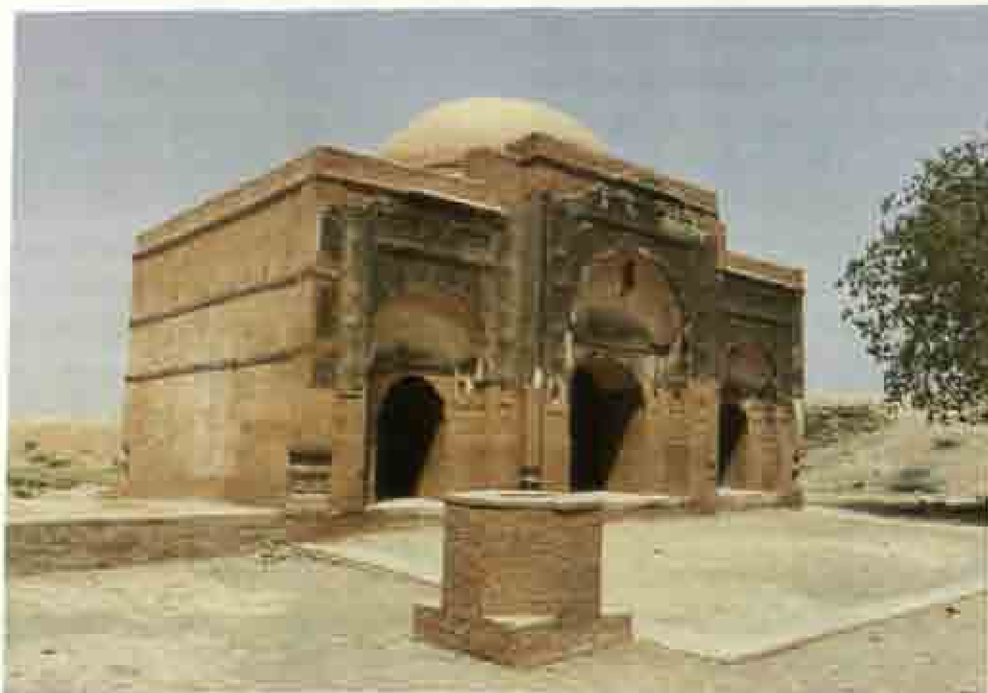
68. ANCIENT SITE, NAURANGABAD, DISTRICT BHIWANI

The protected area of the site freed from encroachments was fenced with barbed-wire fixed on M.S. angles and steel gates were provided.

**Plates 134-135**



134



135

*Hansi, Prithvi Raj Chauhan's Fort:* 134, *before* and 135, *after repair of the mosque*

**Plates 136-137**



136



137

*Hansi, Prithvi Raj Chauhan's Fort, side view:* 136, *before* and 137, *after repair of the mosque*

69. KOS MINARS, DISTRICT FARIDABAD

The Kos Minars at Banchari I & II Bhulwana, Phulwari, Khetela and Aurangabad were repaired by underpinning the missing brickwork, restoring the platform, plastering, pointing and by providing/fixing missing grill panels, etc.

70. SURAJ KUND MASONRY TANK, SURAJ KIND, DISTRICT FARIDABAD

Wire-mesh panels with M.S. angles were provided in the front side to restrict the unauthorized entry to the ticketed monument.

71. PRITHVI RAJ CHAUHAN'S FORT, HANSI, DISTRICT HISSAR

The conservation of mosque to the north side of the fort was attended to by restoring missing brick work, stitching of cracks, providing support to the cracked arches with M.S. sections and checking the outward movement of walls by providing M.S. flat tiles (pls. 134-137).

72. FEROZSHAH PALACE, HISSAR, DISTRICT HISSAR

Conservation of northern side of the palace was attended to by relaying the floor-concrete, restoration of the fallen/missing portions, and also the missing stone masonry work, pointing the joints, removal of debris, patch plastering and watertightening the open tops.

73. MOUND AT RAKHIGARHI, DISTRICT HISSAR

The Mound Nos. I to III were fenced with barbed-wire fixed on M.S. angles and provided with steel gates.

74. SIVA TEMPLE, KALAYAT, DISTRICT KAITHAL

The preservation of the *sikhara* of the temple was done by pointing and stitching the cracks inside the *sikhara.* The pinnacle portion *of sikhara* was also attended to by removing dead, decayed-plaster and re-plastering it besides attending to the missing brick work and stitching. The open joints of the curved brick of the *sikhara* was filled up and the top surface was watertightened. The damaged wall near the steps leading to tanks including steps were repaired after removal of debris. The pathway leading to the temple from roadside was provided and paved with bricks-on-edge (pls. 138-139).

75. GATEWAYS, MUGHAL SARAI, GHARAUNDA, DISTRICT KARNAL

The work of providing and laying bricks on edge pathway over base concrete at southern gate and M.S. grill over dwarf wall at the northern gate was taken up and completed.

76. EUROPEAN SOLDIER'S GRAVE, KARNAL, DISTRICT KARNAL

The damaged graves were repaired by uprooting the vegetational growth, attending to missing brick work and plastering the same. The work is in progress.

77. HARSHA-KA-TILA, THANESAR, DISTRICT KURUKSHETRA

The remaining work of fencing the protected area was completed.

78. KOS MINAR, JAINPURA, DISTRICT KURUKSHETRA

The Kos Minar was repaired besides providing M.S. grill over dwarf wall.

79. SHEIKH CHILL'S TOMB, THANESAR, DISTRICT KURUKSHETRA

The brick masonry of *madarsa* wall was repaired and the sunken brick flooring of some of the cells and dislodged *chhajja* stones of the corner bastion were reset besides repairing ablution tank and museum. Boundary wall to the newly acquired

**Plates 138-139**



138



139

*Kalayat, Siva Temple*: 138, *during* and 139, after *repair of the sikhara*

area on the east side was raised after dismantling the dilapidated one. Open spaces on the inner yard of the *madarsa* were developed into garden by turfing, plantation of flowers and open space on the west side was levelled, dressed and filled with earth.

80. JAL MAHAL, NARNAUL, DISTRICT MAHINDERGARH

The missing stone masonry of the walls and steps of the tank were attended to by pointing the joints, laying lime-concrete on the top of the walls besides replacing the missing stones of the steps and watertightening.

81. MANSA DEVI TEMPLE - COMPLEX, MANI MAJRA, DISTRICT PANCHKULA

The roof of the main shrine of Mansa Devi Temple was taken up for repairs by providing P VC rain-water pipes, laying base concrete, attending *chhajja* repairs, providing a layer of Dholpur stones on the roof after waterproofing treatment. The work was completed. The remaining work of Patiala Temple of Mansa Devi was also completed.

82. KABULI BAGH MOSQUE, PANIPAT, DISTRICT PANIPAT

The repair to the mosque including its dome was done by stitching of cracks with epoxy resin, edging the damaged plaster and by providing brick-on-edge apron on the front side of the mosque, along the boundary wall besides providing M.S. Grill in front of arched hall, paving the bricks near the front gate and restoring the brick work abutting mosque wall on the west side were also attended to. The earth packing was also removed to expose the flooring of the mosque besides brick paving. A bore wall was provided to maintain the garden.

83. SHAH JAHAN-KI-BAOLI, MEHAM, DISTRICT ROHTAK

The collapsed side wall of the Baoli on the west was partly restored to stabilize the hanging portion of the side wall.

84. KHWAZA KHIZR'S TOMB, SONEPAT, DISTRICT SONEPAT

The construction of boundary wall along with the fixing of M.S.angle iron posts for fencing around the protected area was completed. The damaged masonry steps were repaired and joints pointed. The work is in progress (pls. 140-141).

## HIMACHAL PRADESH

85. MANI MAHESH TEMPLE, BHARMOUR, DISTRICT CHAMBA

The decayed wooden members supporting the copper-sheet of the canopy of the temple were replaced and canopy roof restored as per original design and pattern. Sunken/damaged paving stones of the floor were also replaced and reset.

86. SRI GANESA TEMPLE, BHARMOUR, DISTRICT CHAMBA

The sunken flag-stone flooring of the temple was repaired, reset and joints pointed.

87. SRI NAR SINGH TEMPLE, BHARMOUR, DISTRICT CHAMBA

The bulged-out retaining wall was repaired as per the original.

Plates 140-141



140



141

*Sonepat, Khwaja Khizr's Tomb:* 140, *before* and 141, *after conservation*

88. BANSI GOPAL TEMPLE, CHAMBA, DISTRICT CHAMBA

The sunken and damaged flag-stone flooring of the courtyard of the temple was removed and reset as per original.

89. BREJESHVARI TEMPLE, CHAMBA, DISTRICT CHAMBA

The missing and broken slates of the roof were replaced and joints of the stone flooring were pointed.

90. HARI RAI TEMPLE, CHAMBA, DISTRICT CHAMBA

M.S. Grill fencing over dwarf wall was provided for security purpose.

91. LAKSHMI-NARAYANA GROUP OF TEMPLES, CHAMBA, DISTRICT CHAMBA

The bulged-out and damaged miniature temples in the complex were taken up for repairs and the works is in progress.

92. SRI SITA-RAMA TEMPLE, CHAMBA, DISTRICT CHAMBA

The decayed wooden planks of the roof were replaced. The flooring was also repaired.

93. SHAKTI DEVI TEMPLE, CHHATRARI, DISTRICT CHAMBA

The decayed wooden members of the roof were replaced and sagging beams were properly supported. The intermediate floor was repaired and necessary packing provided under the wooden beams. The loose wooden column supporting the roof were braced with M.S. flats. The missing roof slates were replaced.

94. NARBADESVARA TEMPLE, SUJANPUR, DISTRICT HAMIRPUR

The remaining portion of the flooring of the temple was repaired by removing the sunken portions and resetting the same besides replacing the missing, damaged and broken slabs with new ones.

95. KATOCH PALACE, TIRA SI JANPUR, DISTRICT HAMIRPUR

The hanging lime-concrete floors and roof of the main entrance gateway of the palace were strengthened by providing missing wooden scantlings, planks, attending brick work, insertion of wooden lintels, patch plastering etc.

96. SIVA TEMPLE, BAIJNATH, DISTRICT KANGRA

All the encroachments from the east side of the temple were removed. The acquired area was developed by constructing boundary wall with M.S. Grill fencing after the removal of debris/ rubbish. The inner area was levelled and dressed. M.S. wire mesh panels were provided along the pathway.

97. ANCIENT SITE AND BUDDHIST STUPA, CHAITRU, DISTRICT KANGRA

The fencing of the protected area with barbed wire was taken up and is in progress.

98. ROCK-INSCRIPTION, KANIHARA, DISTRICT KANGRA

M.S. Grill fencing was provided around the rock inscriptions.

99. KANGRA FORT, KANGRA, DISTRICT KANGRA

The repair work to the masonry ruins of Sheesh Mahal area was attended to. Some of the floors were exposed after the removal of debris. M.S. Grill was provided around watch tower for safety of the visitors and Grill gates were also

provided for security and safety of temples inside the monument. The sculpture shed was improved for display of museum objects.

100. ROCK-CUT TEMPLES, MASRUR, DISTRICT KANGRA

Repairs to the temple-complex were taken up by restoring the fallen portion of the tank wall, providing flag-stone flooring, fixing of wire mesh panels over dwarf wall along the road side. The work is in progress.

101. NURPUR FORT, NURPUR, DISTRICT KANGRA

Repair to the main entrance of the fort was taken up by removing the undulated stones of the pathway and resetting the same. The work is in progress.

**102.** ROCK-INSCRIPTION, PATHIAR, DISTRICT KANGRA

M.S. Grill fencing was fixed around the rock inscriptions.

**103.** BASESARA MAHADEVA TEMPLE, BAJAURA, DISTRICT KULLU

The undulated area was levelled and the boundary wall was extended. The disturbed flag-stone flooring was reset.

**104.** GAURI-SANKARA TEMPLE, DASSAL, DISTRICT KULLU

The retaining wall on the back side of the temple was shifted back after acquiring more land free of cost from the local residents.

**105.** GAURI-SANKARA TEMPLE, NAGGAR, DISTRICT KULLU

The height of the retaining wall on hill side was raised and M.S. Grill fixed support wall to the miniature Lakshmi-Narayana Temple was also constructed to check land erosion.

106. HIDIMBA DEVI TEMPLE, MANALI, DISTRICT KULLU

M.S. Grill with wire-net panels along the pathway and M.S. iron gate on back side of the temple was provided.

107. MIRKULA DEVI TEMPLE, UDAIPUR, DISTRICT LAHAUL AND SPITI

The decayed wooden shingle of the temple were replaced with new ones as per original. The cost of required timber was borne by the H.P. State Government. M.S. strips and cross bars for timber joints were also provided wherever necessary (pls. 142-144).

**108.** BUDDHIST MONASTERIES, TABO, DISTRICT LAHAUL AND SPITI

Wooden flooring was provided in the Gokhang and Dukhang. The decayed plaster at many places were removed and surface replastered. The decayed wooden members of the roof of Gonkhang were also replaced and the roof made watertight.

**109.** PHOO GUMPHA, TABO, DISTRICT LAHAUL AND SPITI

The decayed roof of the Gumpha was repaired and top watertightened. Retaining wall along the back side of the monastery was raised and support wall provided. The decayed plaster was raked out and surface replastered.

**110.** PANCHAVAKTRA TEMPLE, MANDI, DISTRICT MANDI

Construction of retaining wall on the western

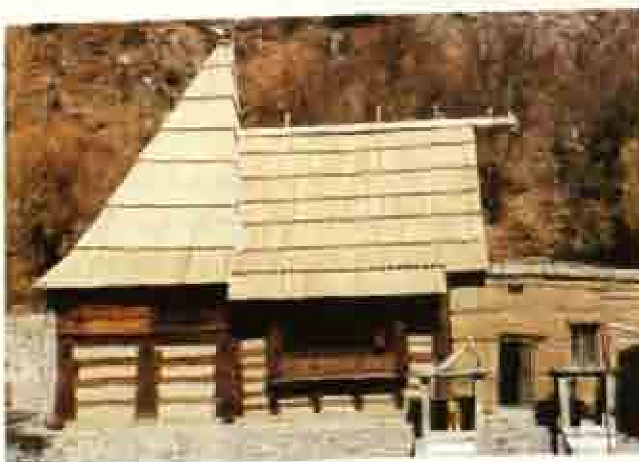
Plates 142-144



142



143



144

*Udaipur, Mirkala Devi Temple;* 142, *before*, 143, *during* and 144, *after replacing old planks*

side and providing pipe railing along the steps from road side was taken up and the work is in progress.

111. TRILOKINATHA TEMPLE, MANDI, DISTRICT MANDI

Cracked stone lintel over the entry door was taken out and reset as per original. Plinths of the small temple ruins near Baoli were reset. Repairs to the Baoli was also attended to. A small sculpture shed to house loose sculptures lying in the temple-complex was constructed and M.S. grill was provided over the retaining wall on road side.

112. VICE REGAL LODGE, SHIMLA, DISTRICT SHIMLA

The Conservation of Counsel Chamber was attended to by watertightening its roof, relaying the concrete and finishing the top with a layer of stone as per original. The damaged and detached stone railing of the Counsel Chamber was repaired and water outlets made functional. Besides the missing PP panels at the ceiling was restored and finished with lime-wash. The Kitchen wing was also taken up for repairs by plastering, pointing, stitching of cracks and repairs to wooden ceiling. The leakage problem in the front verandah was attended to by removing and replacing decayed over loaded concrete from the top making water outlets functional by applying waterproofing treatment and by finishing layer of stones in proper slope. The damaged *chhajja* of public entry building was also repaired.

113. SIVA TEMPLE, MANGARH, DISTRICT SIRMOUR

The retaining wall on south side was further raised. The plinth protection was provided by laying flag stones. The stairs to other miniature shrines were also repaired.

## PUNJAB

114. GATEWAYS OF OLD SARAI, AMANAT KHAN, DISTRICT AMRITSAR

Brick-on-edge flooring on the eastern gate over base-concrete was provided.

115. RAM BAGH GATE, AMRITSAR, DISTRICT AMRITSAR

In continuation of the previous year *(1999-2000,p.292),* the second layer of the *chhajja* and cornice stones below the *jalis* were reset as per the original.

116. BHATINDA FORT, BHATINDA, DISTRICT BHATINDA

Repairs to the bulged walls along the entry to the Rani Mahal were attended to. Temporary support to the weak arches was provided. The front area was improved by providing M.S. Grill panels over brick dwarf wall. The C.P. gate was provided at the entry. The entrance area was made presentable. The protected area was also fenced with barbed-wire.

117. ANARKALI BARADARI, BATALA, DISTRICT GURDASPUR

The preservation of Baradari was attended to by providing missing wooden lintels, stitching the cracks, underpinning the fallen patches, removal of debris, lime-concreting of the flooring, providing outlet pipes to drain out rain-water, etc.

**Plates 145-146**



145



146

*Dakhni Sarai* : 145, *before* and 146, *after conservation of the Mosque*

Plates 147-148



147



148

*Dakhni Sarai, east side wall:* 147, *before* and 148, after *conservation*

The Baradari structure is now safe and presentable. The tank wall/steps on the road side was also taken up for repairs by removing the earth, vegetational growth, patch repairing and pointing.

**118.** SHAMSHER KHAN'S TOMB, BATALA, DISTRICT GURDASPUR

Repairs to the boundary wall and the main entrance portion of the tomb were taken up by removing the bulged-out and out-of-plumb portion and resetting the same as per original. The open top was made watertight.

**119.** ANCIENT SITE AND BUDDHIST STUPA, SANGHOL, DISTRICT FATEHGARH SAHIB

The exposed remains of stupa repaired earlier were badly effected by salt action. The necessary repairs to the extant remains were attended to by replacing the bricks, flooring, providing out-let piles, watertightening the tops, pointing etc. Chowkidar's quarter for round the clock watch and ward was constructed. The protected area was fenced to stop encroachments.

120. DAKHNI SARAI, DAKHNI, DISTRICT JALANDHAR

The repairs to the Sarai cell on the east side were attended to by restoring the missing brick work of arches and vaults, tile-on-edge flooring, pointing, roof concreting and providing brick paved aprons on the front side. The east side wall of the mosque located inside the Sarai-complex was also repaired by attending to the missing brick work, pointing and providing apron on the front side. The inside and outside open area was developed for gardening by levelling, dressing and removal of debris etc (pls. 145-148).

121. NAKODAR TOMB, NAKODAR, DISTRICT JALANDHAR

The damaged and decayed plaster of the platform of Mohammad Momin's Tomb was taken up for repair by removing decayed plaster and re-plastering the same after attending to underpinning of the damaged portions. The work is in progress. The dome and side walls of the platform of the Haji Jamal was also repaired by removing/raking out the decayed and pulverized plaster and re-plastering (pls. 149-150).

122. NURMAHAL SARAI, NURMAHAL DISTRICT JALANDHAR

The damaged masonry cells of the Sarai on the eastern side wall were restored by attending to the missing brickwork of the arches and vaults. The work is in progress. Open area of the Sarai was developed for gardening by removal of debris, levelling and dressing etc (pls. 151-152).

123. ANCIENT SITE, SUNET, DISTRICT LUDHIANA

The available area free from encroachment was fenced with barbed-wire and the remaining area was cleared of encroachment.

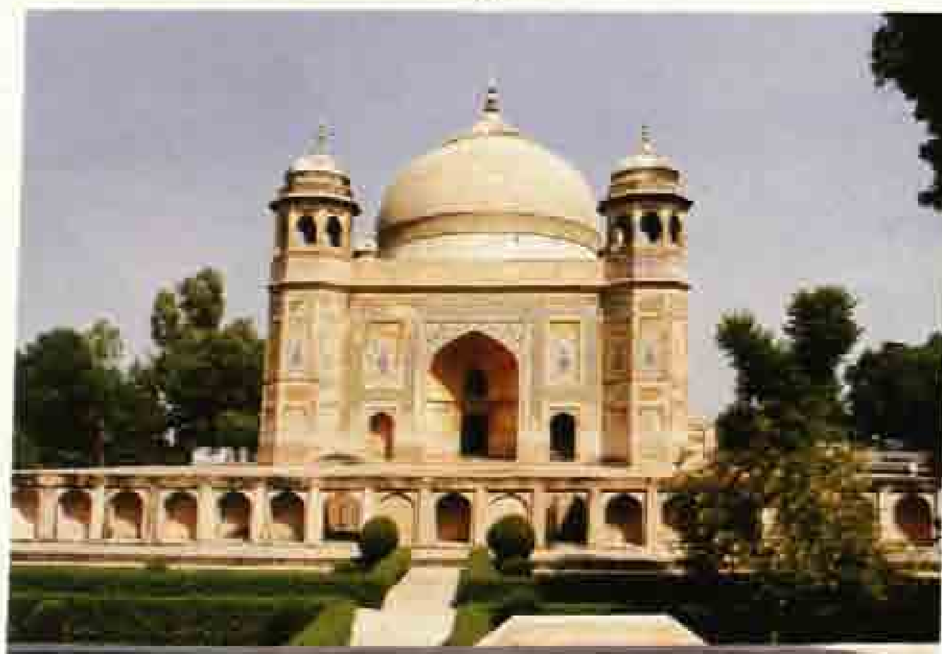
**124.** QILA MUBARAK, PATIALA, DISTRICT PATIALA

Missing roofs on the side of the stairs were restored by providing Sal wood scantlings. Deodar wood planks, a layer of *lakhauri* bricks, concreting and finishing top with a layer of brick tiles. The missing brickwork for the bearing of floors was attended to besides patch repairs to plaster. The barbed earthen members of *chhajja* was restored partly. The work is in progress.

Plates 149-150



149



150

*Nakodar, Haji Jamal's Tomb:* 149, *before* and 150, *after conservation*

Plates 151-152



151



152

*Nurmahal Sarai:* 151, *before* and 152, *after conservation*

## CHENNAI CIRCLE

### TAMIL NADU

125. BLOCK NO. XXXVI/2 (FORT MUSEUM), FORT ST. GEORGE, DISTRICT CHENNAI

The outer surface of the walls were painted with two coats of weather shield exterior paint. Synthetic enamel paint was applied to the wooden and iron members. The rotten wooden joist of the roof over the main staircase were replaced with the new ones after introducing four I-section girders to strengthen the weakened wooden beams.

126. CLIVE HOUSE, FORT ST. GEORGE, DISTRICT CHENNAI

The exterior wall surface, wooden sunshades and the wooden members in the ground floor was applied with two coats of acrylic emulsion paint. Minor repairs were carried out to the wooden doors and windows. Two of the damaged wooden sunshades were replaced using old teak wood members. Patch plastering work was done as needed and antitermite treatment was done in the ground and the first floors.

127. ST. MARY'S CHURCH, FORT ST. GEORGE, DISTRICT CHENNAI

The tower and walls of the Church were applied with weather shield exterior paint. Synthetic enamel paint was applied to the wooden and iron members. Patch plastering work was completed. The vaulted roof was applied with two coats of emulsion paint. The wooden members were also applied with two coats of touch wood paint.

128. MURUGANATHASVAMY TEMPLE, TIRUMURUGANPOONDI, DISTRICT COIMBATORE

The Vimanas were watertightened and given weather shield paint. The *prakara* wall was plastered and painted matching the original. The bronze gallery in the *mandapa* was enclosed with iron grills and doors for safety. Proper drainage was provided to drain out the rain-water and painting of iron/wooden members was done in view of ''*Kumbhabhishekam* ''.

129. NITISVARASVAMY TEMPLE, SRIMUSHNAM, DISTRICT CUDDALORE

The damaged portion of the Vimana was conserved and plastered. The broken stucco figures were strengthened. The Vimana was applied with a suitable paint matching the original.

130. ARJUNA'S PENANCE, MA.MALLAPURAM, DISTRICT KANCHIPURAM

The joints and voids of the bedrock of Arjuna's Penance was watertightened by filling and pointing with epoxy mortar.

131. DUTCH FORT AND CEMETERY, SADRAS, DISTRICT KANCHIPURAM

The damaged walls of the granary located on the north-east corner of the fort was strengthened using specially made bricks of existing size besides removing moss and lichen and grouting the cracks. The accretionary walls were removed and the damaged arches restored. In the course of conservation, the original underground drainage was found.

132. FIVE RATHAS, MAMALLAPURAM, DISTRICT KANCHIPURAM

The joints of the revetment wall was pointed after raking out the dead plaster. A ramp was provided for the benefit of the handicapped visitors.

**133.** HILLOCK MONUMENTS, MAMALLAPURAM, DISTRICT KANCHIPURAM

Iron grill fencing over a dwarf wall was provided along the boundary of the protected limits from north-to-south upto Arjuna's penance and two gates, one opposite the Buttress wall and the other opposite the Ganesa Ratha. Pathway was laid form Ganesa Ratha of Varaha Cave and to Raja-gopuram. Stone flooring was provided in front of Ganesa Ratha for the convenience of visitors and easy drainage of rain-water.

**134.** KAILASANATHA TEMPLE, SALABOGAM, DISTRICT KANCHIPURAM

The Vimana of the main shrine was watertightened up *to prasatra* level and the broken portions of stucco figures were mended. The three fallen *salas* and base stones of *kirttimukhas* were fixed *in-situ.* Teak wood temple type door was provided to the frontal *mandapa* of the main shrine (on southern side) and a new wooden joints were provided to in the ceiling of *garbha-griha* and *antarala* of the temple. Applied two coats of paint on the interior walls of the main shrine and inner *pradakshina-patha.* Fixed M.S. grill fencing over the masonry toe walls on the southwestern side of the temple (pls. 153-154).

**135.** SHORE TEMPLE, MAMALLAPURAM, DISTRICT KANCHIPURAM

The M.S. grill fencing was damaged on the northern and southern sides. It was removed and replaced with P.V.C. coated chain link with necessary R.C.C. post.

**136.** TIGER-HEADED ROCK-CUT TEMPLE, SALAVANKUPPAM, DISTRICT KANCHIPURAM

Barbed-wire fencing with R.C.C. poles was provided on the northern and western sides of the monument with one gate on each side.

**137.** VENKATESAPERUMALA TEMPLE, TIRU-MUKKUDAL, DISTRICT KANCHIPURAM

The weathered exterior surface of the Vimana was strengthened after removing the dead mortar and cleaning the surface using mild chemical and finally plastering with specially prepared lime-mortar. The weathered stucco figures were strengthened and the painting with matching colour was also done. The damaged plastering of the entire roof of the main shrine was removed and watertightened by laying one course of country made tiles. The walls of *garbha-griha, anatrala* and *mukha-mandapa* were pointed and plastered after removing the dead plaster and cleaning the surface with mild chemical to remove the lime-wash-dust etc. The accretionary screen-wall on the north-west corner of the subshrine (Karumanicka Perumala Temple) was removed and the partially concealed *adhishthana* moulding was exposed. The *prakara* wall was re-plastered after removing the damaged plaster on the northern side.

**138.** KORANGUNATHA TEMPLE, SRINIVASANALLUR, DISTRICT KARUR

The accretionary wall on the western and northern sides of the brick Vimana was removed. The weathered old plaster was removed and re-laid after strengthening the damaged portion of the Vimana as per original

**139.** RANGANATHASVAMY TEMPLE, NAMAKKAL, DISTRICT NAMAKKAL

The Vimana of Thayar Shrine was watertightened after removing the old and

Plates 153-154



153



154

*Salabhogam, Kailasanatha Temple:* 153, *before* and 154, *after conservation*

weathered plaster and relaying with fresh one. The broken stucco figures/ornamental features were mended. The terrace of the Thayar Shrine and *madapalli* was watertightened. The temple tank was provided with a grill fence.

140. ROCK-CUT SHRINE OF PUSHPAVANESVAR, PUVALAKUDI, DISTRICT PUDUKKOTTAI

The leaky terrace of the *mandapa* was watertightened by laying a fresh one after removing dead and weathered courses. The joints in-between the ceiling stone slabs were pointed. The brick wall on edge was constructed by using special sized bricks and also carving as per original. At the entrance of the *mandapa* a broken capital and a stone beam was replaced with new one.

The broken and damaged brick portion of Chandesvara Shrine was strengthened by mending, plastering and painting with matching colour.

The undulating damaged stone flooring was removed and re-laid using 50% of oldstones and 50% of new stones. The joints were carefully pointed with combination mortar. The accumulated earth in front of the Amman Shrine was cleared and the ground levelled to prevent stagnation of rain-water- (pls. 155-156).

141. ROCK-CUT SIVA CAVE TEMPLE, KUNNADARKOIL, DISTRICT PUDUKKOTTAL

The Vimana was watertightened after removing the old and weathered plaster, strengthening the damaged portion and cleaning the surface with mild chemical to remove dust, moss and lichen. The broken portions of stucco figures were mended and finally it was plastered and given a colour wash. The inner surface of the Vimana was also plastered after removing the dead plaster. The breached compound wall was reconstructed.

142. SIVA TEMPLE, VISALUR, DISTRICT PUDUKKOTTAL

The dead plaster of the Vimana was removed and re-plastered with a layer of fine lime-mortar over a layer of combination mortar. The damaged stucco figures were mended. Suitable colouring was given. The ceiling of Amman shrine was plastered.

143. FORT AND SRI VARADARAJA TEMPLE, CHINNAKAVANDANUR, DISTRICT SALEM

The dead plaster over the Vimana of the main shrine and the Thayar Shrine was removed and re-laid with hand ground lime-mortar paste over the base plaster and watertightened. The out-of-plumb wall was dismantled and reconstructed after strengthening the foundation.

144. REMAINS OF FORT WITH OTHER BUILDINGS, ATTUR, DISTRICT SALEM

The leaky terrace of the Durbar Hall was watertightened after removing the dead old plaster and laying a fresh one. The Vasantha *mandapa* area was fenced.

145. AIRAVATESVARA TEMPLE, CHATRAMDARA-SURAM, DISTRICT THANJAVUR

The *maha-dvara* which was in ruined condition was brought back to its original feature. During this year, the northern side (inner side) of the *maha-dvara* was dismantled carefully and restored upto the ground floor.

**Plates 155-156**



155



156

*Puvalakudi, Rock-cut shrine:* 155, *before* and 156, *after conservation*

146. JAINA TEMPLE, THIRUVANANTHAPURAM, DISTRICT TIRUVANNAMALAI

The weathering course of the leaky roof of the Chandraprabhusvami Temple, *mukha-mandapa* was carefully removed after giving necessary support to the ceiling slabs. The sunken pillars were removed by carefully removing the leaning ceiling slabs and beams. After giving proper foundation, the pillars, beams and ceiling slabs were reset in their original place. Provided new *chhajjas* and coping stones as per the original designs wherever missing. Weathering course was laid after pointing and filling the gaps between ceiling slabs. Provided pipe railing on the hill top to the approach of Neminatha Temple for safety. The undulated stone flooring was removed and relaid after levelling the surface and the joints were pointed with combination mortar.

147. JALAKANTESVARA TEMPLE, VELLORE, DISTRICT VELLORE

The dead plaster of the *prakara* wall was removed and the joists were raked out. The surface was cleaned and the moss and lichen were removed. The gaps were filled up by combination mortar. The damaged/broken arches and *nandis* in stucco were mended carefully and also replaced as per original wherever missing. Finally the surface was plastered and given a colour wash.

148. OLD COLLECTORATE'S OFFICE, VELLORE FORT, DISTRICT VELLORE

The dead plaster was carefully raked out and re-plastered by applying base plaster with combination mortar and then applying a thin coat of pure lime-paste and finally giving a colour wash. In addition, old wooden doors and windows were given two coats of superior quality enamel paint.

149. BRAHMAPURISVARA TEMPLE, BRAHMADESAM, DISTRICT VILLUPURAM

After proper documentation the damaged veneer wall and ceiling slabs on the southern side were dismantled and stacked for reuse.

Earthwork excavation was undertaken for a fresh foundation. Plain cement-concrete base and random rubble masonry footings were laid. The inner and outer veneer wall was raised to the level of ceiling slabs and the core was filled with stone rubbles in combination mortar.

150. FORT-COMPLEX, GINGEE, DISTRICT VILLUPURAM

The outer surface of the row of cells on the north-west corner was replastered as per original removing the dead plaster. The damaged pathway in-between the cells was removed and re-laid with fresh jelly concrete in pure lime and applying a thin weathering coat over it as per existing style.

The leaky terrace of fourth entrance gate was repaired by laying two layers of flat tiles after removing the dead weathering course. The terrace was plastered with fresh combination mortar. The dead plaster of the walls was removed, the joints properly raked out and pointing was done. Finally, the wall was plastered with combination mortar and over it a thin coat of hand ground lime-paste was applied.

151. KALAYANA MAHAL, GINGEE, DISTRICT VILLUPURAM

The damaged flooring of the stepped tank inside the Kalyana Mahal was dismantled and a fresh brick-jelly concrete in pure lime was laid. The top surface was plastered with combination mortar. In the process the ancient fountain nozzles

Plates 157-158



157



158

*Aihole, Jyotirlinga Temple- complex:* 157, *before* and 158, *after conservation*

made of terracotta was restored after removing the capped modern bricks.

152. PONDICHERRV GATE, GINGEE, DISTRICT VILLUPURAM

The leaky terrace of 'U' shaped corridor was conserved by applying one layer of flat tiles after dismantling the dead plaster and broken flat tiles. A plaster with combination mortar was applied over the flat tiles. The coping of corridor was also conserved. A broken beam was replaced with available beam and the terrace was watertightened. The steps on either side of the gate were also conserved by resetting the same.

## DHARWAD CIRCLE

## KARNATAKA

**153.** CHICKKI GUDI, AIHOLE, DISTRICT BAGALKOT

The leaky roof of the temple was watertightened by pointing the.joints with combination mortar.

**154.** DURGA TEMPLE, AIHOLE, DISTRICT BAGALKOT

To regulate the rain-water in the garden area and pathways around the temple, rubble masonry drainage was provided along the eastern periphery with a gradient from east-to-west.

**155.** JYOTIRLINGA GROUP OF TEMPLES, AIHOLE, DISTRICT BAGALKOT

The dislodged and disturbed architectural members such as roof-slabs, beams, capitals, pillars and walls of the entire temple were completely dismantled after proper documentation. The temple was reconstructed using the original architectural members on the original plan and elevation upto the plinth level after duly strengthening the foundation (pis.157-158).

156. RACHI GUDI, AIHOLE, DISTRICT BAGALKOT

In order to avoid unwanted entry to the protected premises around the temple, 1.80 m high rubble masonry compound wall in combination mortar was raised to a length of 90 m along the northern periphery of the protected area. The area around the temple on the northern and the southern sides were also levelled with proper gradient.

**157.** TARABASAPPA TEMPLE, AIHOLE, DISTRICT BAGALKOT

The uneven and undulated area around the temple was levelled with proper gradient to avoid stagnation of the rain-water. Iron grill gate was provided at the main entrance.

**158.** VENIVARGUDI, AIHOLE, DISTRICT BAGALKOT

The sunken and dislodged stone members of foundation, plinth, *kakshasana* pillar base, capitals, ceiling slabs etc. of the main temple were dismantled carefully after proper documentation and stacked in a convenient manner near the site of reconstruction. The foundation course were reset after laying P.C.C. bed of requisite thickness (pls.159-160).

**159.** AGASTYA TEERTHA TANK, BADAMI, DISTRICT BAGALKOT

The dislodged and fallen stone members of the stone masonry retaining wall along the periphery of the tank of the southern side of the Durgama Temple were dismantled after proper documentation and reconstructed to the plumb following the original plan after providing suitable P.C.C foundation (pis. 161-162).

**160.** BHUTANATHA TEMPLE, BADAMI, DISTRICT BAGALKOT

The dislodged and out-of-plumb wall and the

**Plates 159-160**



159



160

*Aihole, Veniyargudi Temple- complex: 159, before and 160, after conservation*

Plates 161-162



161



162

*Badami, Agastya - teertha Tank, retaining wall:* 161, *before* and 162, *after conservation*

flight of steps on the northern side of the main temple were carefully dismantled and reconstructed as per the original using the same sandstone members after duly strengthening the foundation.

161. NORTH FORT AND TEMPLE, BADAMI, DISTRICT BAGALKOT

The eroded and undulated flight of steps were neatly repaired using combination mortar and the surface was matched with the original by suitable colour washing.

162. PALLAVA INSCRIPTION, BADAMI, DISTRICT BAGALKOT

The damaged and ugly looking barbed-wire fencing over the compound on the northern front was replaced by new crimped-wire fencing to the required height.

163. JAINA TEMPLE, HALLUR, DISTRICT BAGALKOT

The area around the temple was levelled with proper gradient and the construction of new flight of steps is in progress.

164. JATAVEDA MUNI GADDUGE, KUDALA SANGAMA, DISTRICT BAGALKOT

Dismantled portion of the temple was being reconstructed using original architectural members in accordance with the original plan and elevation and replacing new ones wherever necessary.

165. SANGAMESVARA TEMPLE, KUDALA SANGAMA, DISTRICT BAGALKOT

Reconstruction of the dismantled *maha-mandapa* using the original members and providing new ones wherever required was in progress. The joints of the reconstructed portion were pointed using combination mortar.

166. GROUP OF TEMPLES, PATTADAKAL, DISTRICT BAGALKOT

The undulated and out-of-plumb original U.C.R. stone masonry wall set in mud mortar on either side of the steps leading to the sculptureshed was completely dismantled and useful material was stacked for reuse. New R.R. stone masonry compound wall set in combination mortar was raised after laying P.C.C foundation of requisite thickness.

167. SANGAMESVARA TEMPLE, PATTADAKAL, DISTRICT BAGALKOT

The sunken and undulated stone slabs of the temple were removed and neatly relaid over a RC.C. bed of suitable thickness.

168. SCULPTURE GALLERY, PATTADAKAL, DISTRICT BAGALKOT

The decayed and dead lime-mortar laid over the roof of the gallery as completely removed and reinforced cement-concrete of requisite thickness was provided to arrest seepage of rain-water.

169. VIRUPAKSHA TEMPLE, PATTADAKAL, DISTRICT BAGALKOT

The broken and damaged roof slabs of the *sabha-mandapa* were carefully replaced with the new ones matching the original besides pointing the joints with combination mortar. The leakyroof was suitably watertightened by laying brick-jelly lime-concrete to a thickness of 40 cm with proper gradient. The top surface was plastered in combination mortar to a smooth finishing. The joints in the wall were filled and pointed using combination mortar with colour finishing to match the original. New flight of steps with balustrade were provided at the eastern entrance. New concealed electrical wiring and lighting

arrangements were made with all accessories so as to give the interior of the temple a better and aesthetic look.

170. HIKKALINGESVARA TEMPLE, KONNUR, DISTRICT BELGAUM

The leaky roof of the temple was suitably watertightened by removing the dead and decayed concrete and relaying *lime-surkhi* and brickbats with suitable ramping. The joints of the main *sikhara* were raked and refilled with grouting. The superstructure of the compound was raised to requisite height and crimped-wire mesh with M.S. angle posts were fixed over it.

171. KA.MALA BASADI, BELGAUM, DISTRICT BELGAUM

Old damaged wiring and lighting arrangements were removed and new concealed electrification was done to the interior and exterior of the monument.

172. SAFA MASJID, BELGAUM, DISTRICT BELGAUM

The interior and exterior of the mosque were provided with new lighting arrangements at vintage points. The damaged walls of the ruined old well were dismantled and reconstructed in combination mortar and grills were provided to avoid any untoward incident. Pump set and other requisite arrangements were installed to maintain water supply. The stone cut fountain and damaged portions of the pond were repaired and rendered functional. The dead lime-plaster on the interior walls and roof was raked out and chemically treated to expose the original stone and engraved surfaces.

173. GROUP OF MONUMENTS, ASTHUR, DISTRICT BIDAR

The dome of the tomb of Noorjahan Begum was watertightened by grouting the cracks with lime-mortar. The decayed and dead lime-plastering on the exterior surface of the superstructure was removed and re-plastered as per the original. The ugly looking accretion wall blocking the arches was dismantled and welded mesh doorframe was fixed. The dilapidated flight of steps leading to the monument was completely dismantled and reconstructed as per the original.

174. MADARSA OF MOHAMMAD G.WAN, BIDAR, DISTRICT BIDAR

The damaged concrete apron on the northern, southern and rear sides of the monument was re-laid with proper gradient to avoid stagnation of rain-water and finished with lime-mortar.

175. ASAR MAHAL, BIJAPIR, DISTRICT BIJAPUR

An U.C.R. stone masonry footing over P.C.C. bed was provided on the eastern and northern sides of the monument. The height of the compound wall was increased by constructing a rubble masonry wall over the footing.

176. BADIKAMAN, BIJAPUR, DISTRICT BIJAPUR

The damaged and ugly looking barbed-wire fencing was replaced by new G.I. steel grills of approved design in combination mortar over dwarf wall. The joints of dwarf wall were pointed and plastered.

177. GAGAN MAHAL, BIJAPUR, DISTRICT BIJAPUR

Missing portion of the compound wall was constructed in rubble masonry set in combination mortar. The joints were pointed and coping layers of concrete was laid and plastered. The disturbed flight of steps was dismantled and reconstructed as per the original.

**178. IBRAHIM RAUZA, BIJAPUR, DISTRICT BIJAPUR**

The rusted and damaged barbed-wire and M.S. angle fencing were removed and U.C.R. compound wall set in combination mortar was raised to requisite height and newly designed structural grill was fixed over the compound with a coping in combination mortar. The damaged pathway connecting the Ibrahim Rauza and the ancient toilet block within the complex was repaired and rendered functional.

**179. JOR GUMBAZ, BIJAPUR, DISTRICT BIJAPUR**

The dead and decayed old plaster over the walls, floor etc. removed completely by chipping and raking, were re-plastered in combination mortar after levelling the floor and grouting the voids and refilling joints of the walls wherever necessary. The top surface was rendered smooth and colour washed to match with the original.

**180. JUMMA MASJID, BIJAPUR, DISTRICT BIJAPUR**

After necessary earthwork, P.C.C. bed was laid and U.C.R. masonry footing and basement were raised in the northern, western and eastern sides of the monuments for construction of the compound wall.

181. KARIMUDDIN'S MOSQUE, BIJAPUR, DISTRICT BIJAPUR

U.C.R. stone masonry wall set in combination mortar of requisite height was constructed over P.C.C. bed and crimped chain wire mesh was fixed over it and suitably painted.

182. MEHTARI MAHAL, BIJAPUR, DISTRICT BIJAPUR

The cracked portion of the arch and walls were dismantled and stacked for reuse and constructed the same in lime-mortar with rubble stone. Repairs to the *chhajja* stone are in progress.

183. SANGEET AND NARI MAHAL, TORVI, DISTRICT BIJAPUR

The rank vegetation grown in the protected area was removed. The undulated area was levelled with proper gradient of drain of the rain-water. The U.C.R. compound wall of requisite height was constructed over a P.C.C. bed. The joints were neatly pointed and coping concrete course was laid. G.I. steel grill gate was fixed and suitably pointed to match with the environs and colour of the monument.

184. SOMESVARA TEMPLE, DAMBAL, DISTRICT GADAG

The dead and decayed lime-mortar over the leaky roof of the temple was removed completely. The work of relaying waterproof course and the pavement around the temple is in progress.

185. MAHADEVA TEMPLE, ITTAGI, DISTRICT GADAG

The dead and decayed lime-mortar and other debris accumulated over the roof of the *mandapa* on the southern side of the temple was completely removed. The undulated area around the temple was levelled with proper gradient.

186. CHANDRAMOULESVARA TEMPLE, UNKAL DISTRICT GADAG

Requisite P.C.C. bed was laid for raising the compound wall around the monument.

187. FORT, GULBARGA, DISTRICT GULBARGA

The rank vegetation grown over the fort wall

and bastions as well as within the protected area was removed completely.

188. GREAT MOSQUE, GULBARGA, DISTRICT GULBARGA

The dead and decayed plaster over the exterior of the domes was carefully removed. As a measure of watertightening, fresh *lime-surkhi-* concrete was laid over domes and surface was finished with lime-mortar to match the original.

189. HAFT GUMBAZ, GULBARGA, DISTRICT GULBARGA

The fallen portion of the platform on the southeastern corner of the tomb of Feroz Shah Bahmani was reconstructed as per original.

190. SIDDESVARA TEMPLE, HAVERI, DISTRICT HAVERI

Compound wall was raised on the southern and eastern sides of the temple in sized stone masonry. The interior of the temple was provided with electrification and lighting.

191. ADIKE NARAYANA TEMPLE, BHATKA, DISTRICT UTTARAKANNADA

The damaged and out-of-plumb compound wall on the northern and eastern sides of the temple were dismantled and reconstructed with new laterite stone blocks set in combination mortar after providing proper foundation and damp proof course in P.C.C. The dead and decayed old brick-jelly concrete over the roof was completely removed and fresh course of brick-jelly concrete was laid after suitably pointing the joints of the roof slabs.

192. KETPAI NARAYANA TEMPLE, BHATKAL. DISTRICT UTTARAKANNADA

To the northern side of the temple fresh stone pitching was done for strengthening the foundation. Dead and decayed old brick-jelly concrete over the leaky roof was completely removed. The joints of the roof slabs were pointed afresh with waterproof course of brick jelly concrete.

193. CHATURMUKHA BASTI, GERSOPPA, DISTRICT UTTARAKANNADA

The damaged and bulged-out compound wall of the temple was dismantled and reconstructed by using new dressed laterite blocks as per the original.

194. FORT, MIRJAN, DISTRICT UTTARAKANNADA

The rank vegetation grown on the fort walls, excavated structures and the open area in the monument was cleared. The debris accumulated due to collapsing of the bastion and fort wall was cleared and reusable earth and laterite blocks were stacked. The bulged-out and breached portions of the fort wall were re-constructed by using new dressed laterite stone. The top surfaces of the excavated structures were given a waterproof course and the joints were pointed using combination mortar (pls. 163-164).

195. SARVESVARA TEMPLE, NAREGAL, DISTRICT UTTARAKANNADA

A new approach road leading to the temple for the village limits was laid by spreading stone jelly and *murram* after duly levelling the surface besides constructing a rubble masonry stone culvert with R.C.C. pipe.

**Plates 163-164**



163



164

*Mirjan Fort* : 163, *before* and 164, *after conservation of the bastion*

GUWAHATI CIRCLE

## ARUNACHAL PRADESH

**196.** REMAINS AT BISHMAKANAGAR, DISTRICT DIBANG VALLEY

A pathway was provided from gate to the inner wall of the structures besides resetting, pointing, underpinning and watertightening the structures (1, 2, and 3). Apron around the structures were provided and accumulated earth 50 cm thick was removed.

## ASSAM

**197.** ANCIENT ROCK-CUT CAVES, JOGIGHOPA, DISTRICT BANGAIGAON

The construction of retaining wall on the river side of the Brahmaputra was completed and the work for pathway is in progress.

**198.** CACHARI RI INS, KHASPUR, DISTRICT CACHAR

Brick and lime-concrete apron was provided on both sides of the east wall of Cachari ruins along with buttress. Construction of the boundary wall around the Ranachandi Temple (no.l) is in progress.

**199.** RANGAMATI MOSQUE, DISTRICT DHUBRI

Construction of boundary wall with ornamental grill upto a height of 2 m (including grill height) was completed.

**200.** SRI SURYAPAHAR RUINS, DASABHUJA DEVASTHANA, DISTRICT GOALPARA

Conservation of the enclosure walls of recently excavated *panchayatana* stone temple-complex and excavated brick temple remains, near the camp office, with the help of combination mortar was attended to. A P.C.C. laid pathway (pls. 165-166) from the site of Brahmanical remains to rock-cut votive stupas, upto the excavated remains (near camp office) was provided. The masonry platform and railings were provided around the biggest rock-cut stupa. The work of P.C.C. laid pathway was in progress while the serpentine pathway with steps upto the Jaina Cave 2, lies above the hill was completed. The work pertaining to building or sculptureshed and the construction of boundary wall with M.S. grill over it, is in progress. The construction of retaining cum cut-off-walls also is in progress.

**201.** MONOLITHS, KASOMARI PATHAR, DISTRICT GOLAGHAT

The work of laying P.C.C. pathway from the main entrance to the monoliths was completed and construction of the storeshed is in progress.

**202.** SIVADOL, NEGHERITTING, DISTRICT GOLAGHAT

The conservation of front side and the half portion of the side walls of the ancient compound wall upto the height of 1.20 m was completed by re-setting, pointing and watertightening with combination mortar, matching the original. The rest of the areas of the side wall was undertaken for further restoration.

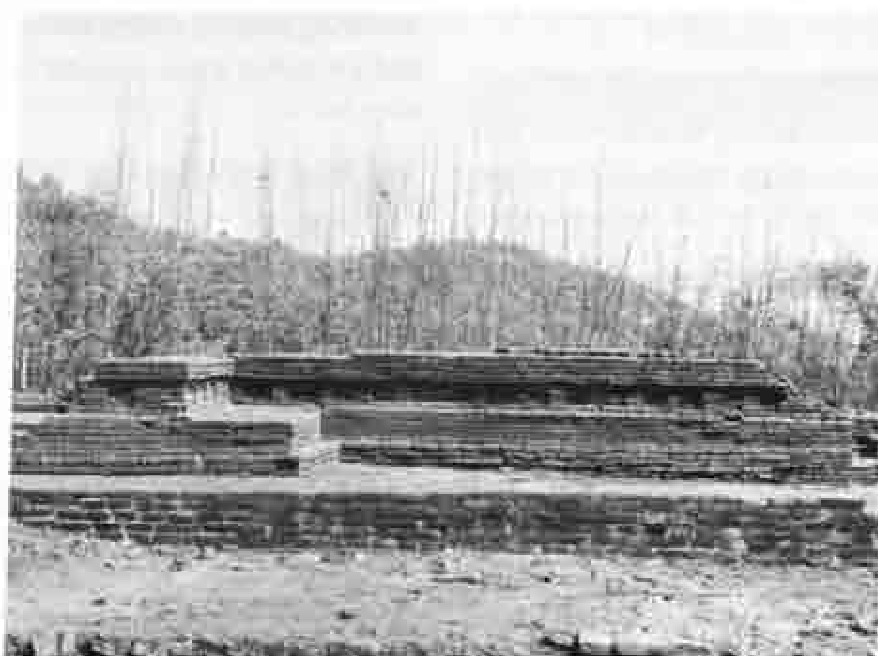
203. AHO.M RAJA'S PALACE, GARHGAON, DISTRICT SIBSAGAR

A boundary wall of comfortable height was constructed around the palace and M.S. grill, designed in the Ahom's symbol of dragon, was fixed in the front side of the boundary wall while the remaining portion of the compound wall was mounted with barbed-wire fencing.

**Plates 165-166**



165



166

*Suryapahar, excavated brick shrine:* 165, *before* and 166, after *conservation*

204. GROUP OF FOUR MAIDAMS, CHARAIDEO, DISTRICT SIBSAGAR

Apart from providing parking space, ticket counter and drinking water facilities on either side of the main entrance and the construction of the boundary walls around the four *maidams* is in progress.

205. SIVADOL, GAURISAGAR, DISTRICT SIBSAGAR

The decayed lime-concrete plaster from the *mandapa* roof of the temple was replaced with new plaster, matching the original. Besides providing two meter wide brick paved pathway for the convenience of the visitors, the ancient compound walls on the two sides was also restored with the help of combination mortar.

**206. VISHNUDOL, GAURISAGAR, DISTRICT SIBSAGAR**

Conservation of ancient compound wall around the Vishnudol, Gaurisagar, was taken up.

207. DEVIDOL, JOYSAGAR, DISTRICT SIBSAGAR

The work of constructing boundary wall with M.S. Grill around the protected area of the temple besides the portion facing the tank was completed.

208. VISHNUDOL, JOYSAGAR, DISTRICT SIBSAGAR

Plantation of coconut trees was done.

209. BORDOLE TEMPLE, BISWANATH, DISTRICT **SONITPUR**

The decayed lime-plaster of the roof of the *mandapa* was replaced with new lime-plaster concrete as per original features. The flooring of *mandapa* and *antarala* was also attended to with concrete as per original. M.S. grill railings on the compound wall were provided.

210.MASONRY REMAINS OF BAMUNI HILLS, TEZPUR, DISTRICT SONITPUR

The work of barbed-wire fencing with R.C.C pillar post around the site was completed.

211. MOUNDS AND RUINS, DAHPAKUATIA, TEZPUR, DISTRICT SONITPUR

The four pillars of the *mandapa* and a temporary G.I. sheet shed were provided over the famous door frame of Gupta period besides providing pathway and gate at the main entrance replacing the old pathway.

212. ROCK KNOWN AS SUKRESVARA (ON THE RIVERINE ISLAND UMATUMANI), DISTRICT SONITPUR

Barbed-wire fencing around the protected site is in progress.

213. DHANDI TEMPLE,GOHPUR, DISTRICT SONITPUR

The removal of fallen debris besides re- setting, pointing, underpinning, watertightening and providing apron around the temple were attended to.

214. RUNS AT SINGRI HILLS, DISTRICT SONITPUR

A barbed-wire fencing around the ruins at Singri hills was provided besides constructing masonry pedestals for display of architectural members in a proper way. Scientific clearance around the temple-complex is in progress.

## MANIPUR

215. TEMPLE OF VISHNU, BISHENPUR, MANIPUR

Apron around the monuments along with plaster of the compound wall and iron gateways on both the sides of the compound were provided

besides a drain along the boundary wall to prevent accumulation of rain-water. The fixing of M.S. grill over the compound wall is in progress.

## MEGHALAYA

**216.** STONE MEMORIAL OF U-MAW THODUR-BRIEW, NARTIYANG, DISTRICT JAINTIA HILLS

The construction of boundary wall at the back side and pathway is in progress.

## NAGALAND

**217.** REMAINS OF A FORT, DIMAPUR, DISTRICT DIMAPUR

Dwarf wall with railings in northern and southern complexes of the monoliths along with an iron gate with railings on the front side of the main gate were provided. The remains of the ancient wall, to the right side of the main gate were restored and the levelling, filling and plantation of coconut trees were done.

## TRIPURA

**218.** SCULPTURES AND ROCK-CUT RELIEFS OF THE UNAKOTI TIRTHA, DISTRICT NORTH TRIPURA

The construction of R.C.C bridge connecting the remains of Unakoti was completed and a R.C.C. pathway, the guard wall between both the bridges and pathway upto *pitha* mould was provided. Below the carved figures of Siva and Ganesa scientific clearance was undertaken. Construction of sculptureshed and shifting of sculptures are in progress.

**219. CHATURDASA DEVATA TEMPLES,** RADHAKISHOREPUR, DISTRICT SOUTH TRIPURA

The missing roof of the *nata-mandapa* at Chaturdasa Devata group of temples were restored.

220. GUNAVATI GROUP OF TEMPLES, RADHAKISHOREPUR, DISTRICT SOUTH TRIPURA

The conservation of the damaged *mandapa* of the central hut-shaped shrine with the usual designs all around, just below the *char-chalas* was taken up in combination mortar (pls. 167-168) besides providing compound wall with ornamental grills on the front side.

**221. THAKURANI TILLA, PILI.AK, DISTRICT SOUTH** TRIPURA

The restoration of excavated remains of Surya Temple is in progress.

HYDERABAD CIRCLE

## ANDHRA PRADESH

**222. SCULPTURESHED, HEMAVATI, DISTRICT** ANANTAPUR

The damaged and dead plaster over the roof and also on the southern wall of the shed was removed and re-plastered. Broken drain pipes were removed and replaced with new ones. Laying of weatherproof course over the roof is in progress.

223. GROUPOFTEMPI.ES, LEPAKSHI, DISTRICT ANANTAPUR

Dressed granite stone steps were provided to the *kalyana-mandapa* and also on the northern

**Plates 167-168**



167



168

*Radhakishorepur: Gunavati Temple: 167, before and 168, after conservation*

flank of Veerabhadrasvamy Temple. Near the monolithic bull, the existing barbed-wire fencing was removed and a dwarf C.R. masonry wall was constructed and a welded grill fencing was fixed over this wall. In front of Veerabhadrasvamy Temple also a dwarf C.R. masonry wall was constructed with M.S. grill fixed over it . The bulged-out stone wall of eastern *gopura* was re-set. A grill gate fixed at the eastern *gopura* of Veerabhadrasvamy Temple. After removing rank vegetation around the monolithic bull, garden earth was spread and a lawn was laid.

**224.** SRI CHINTALA, VENKATARAMANASVAMY AND BUGGA RAMALINGESVARASVAMY TEMPLES, TADIPATRI, DISTRICT ANANTAPUR

Repairs to eastern *gopura* with specially fabricated bricks and the construction of dwarf C.R. masonry wall for fencing are in progress. At Bugga Ramalingesvarasvamy Temple, wooden doors were fixed. The damaged wooden rafters were replaced with country wooden rafters and then brick-jelly lime-concrete was laid over them to make the roof waterproof.

**225.** LOWER AND UPPER FORT, CHANDRAGIRI, DISTRICT CHITTOOR

Under civil deposit work, removal of rank vegetation, cutting of trees over the outer and inner fortification wall of lower fort was completed. Similarly, removal of rank vegetation and trees from the walls of citadel, upper fort, bastions, ramparts etc. was also completed.

**226.** INDRANADHASVAMY TEMPLE, PUSHPAGIRI, DISTRICT CUDDAPAH

At Sri Indranadhasvamy Temple, the decayed and cracked concrete over the roof of the *mandapa* was removed. The bulged portions of the western *mandapa* were opened and brick-jelly-lime-concrete was laid over it and plastered the surface. The Cuddapah slabs were removed from the courtyard. The bulged portions of the compound wall were opened. Earthwork excavation for laying foundation for compound wall with cement-concrete and filling the core with stone were taken up. The work of removing the sunken flooring and relaying the same is in progress.

**227.** KODANDARAMASVAMY TEMPLE, PEDDA-MUDIAM, DISTRICT CUDDAPAH

The debris was removed from the terrace of the temple. The existing dry stone masonry compound walls were dismantled and a compound wall in lime-stone masonry with cement-mortar using 70% of old available stones and 30% of new stones was constructed. The apron around the main temples was re-laid with Cuddapah slabs.

**228.** SRI MUKUNDESVARA AND OLD VISHNU TEMPLES, PEDDAMUDIAM, DISTRICT CUDDAPAH

The damaged and disturbed members of the retaining wall around the temple and the platform in front of the temple were dismantled and reconstructed using 70% of the old stones. The work of laying of brick-jelly-concrete over the roof of the temples was also completed. An apron of 1.2 m wide was provided all around the temples using Cuddapah slabs of 5 cm thick over a bed of cement-concrete.

**229.** SRI KODANDARAMASVAMY TEMPLE, VONTI-MITTA, DISTRICT CUDDAPAH

The work of re-plastering the ornamental portion of eastern *gopura* and fixing up of missing wooden rafters in the central hollow portion inside the *gopura* was completed. Mending of stucco figures in eastern *gopura* in conformity with the original is in progress.

230. VAIDYANADHASVAMY TEMPLE, PUSHPAGIRI, DISTRICT CUDDAPAH

At Vaidyanadhasvamy Temple, fencing work was completed by constructing a C.R. masonry dwarf wall and fixing of' L' angle posts and barbed-wire, including painting to the fencing. The damaged portions of *gopura* was re-plastered. The *mukha-mandapa* was also conserved by bringing to plumb all the pillars and capitals and roof was also relaid to make it waterproof. The disturbed and bulged-out stonewall of inner *prakara* was removed after documentation and was reconstructed.

231. SRI BHIMESVARASVAMY TEMPLE, DISTRICT EAST GODAVARI

To fence the archaeological area around the outer *prakara,* construction of R.R. masonry dwarf wall on the eastern and western sides of the *prakara* wall and fixing of 'L' angles and barbed-wire were completed.

232. SRI BHAVANARAYANASVAMY TEMPLE, BAPATLA, DISTRICT GUNTUR

The broken lintel beam *of mukha-mandapa* of the temple was removed and replaced with new ones.

233. AKKANNA-MADANNA OFFICES, GOLKONDA FORT, DISTRICT HYDERABAD

Akkanna-Madanna offices were watertightened by laying brick-jelly and lime-concrete above the roof and removal of old and decayed mortar from the joints and repointing the same. Steps were reconstructed near the cell.

234. CHARMINAR, HYDERABAD, DISTRICT HYDERABAD

Switch gear for the lights in different places was fixed. Patch plastering and painting etc. were completed.

235. MORTUARY BATH, ,GOI.KONDA Four, DISTRICT HYDERABAD

The walls and arches of the mortuary bath were plastered wherever damaged. A stone wall in R.R. masonry using only lime-mortar was constructed on the south side of mortar and also near the water tank inside the mortuary.

236. NAKKARKHANA AND REAR SIDE OF SILAIKHANA, GOLKONDA FORT, DISTRICT HYDERABAD

Vegetation and debris were cleared from the area of Naqqarkhana and also on the rear side of Silaikhana. Plastering of damaged portions of the elevated walls in Naqqarkhana was attended to with lime-mortar. The existing ruined walls and the walls over the arches were reconstructed with RR stone masonry in lime-mortar. The old and damaged lime-pointing was removed from the exterior face of arched portions on the rear side of the Silaikhana and repointing was done with fresh lime-mortar. The existing top portion of the walls in Naqqarkhana area and those on the rear side of Silaikhana were watertightened. Fixing of GI diamond grilled fencing over the parapet wall around the ancient well was completed.

237. RANI MAHAL - COMPLEX, GOLKONDA FORT, DISTRICT HYDERABAD

The work of fixing of iron grills at Zanana mosque and ladies dressing hall of Rani Mahal complex were completed to prevent vandalism. Painting to these grills also was completed. The work of mist blowing and fogging was attended to with the help of the Pest Control of India to stop menace of bats in Ranimahal-complex.

### 238. STRUCTURES, LOWER AND UPPER FORT, GOLKONDA F()U1, DISTRICT HYDERABAD

The work of construction of R.R. masonry wall on south-east corner of camel stable, removal of debris of fallen fort-wall in a proper manner, removal of bulged wall and reconstructing the same with available stone in lower fort is in progress. In upper fort the work of raking out damaged mortar in the joints of the flight of steps leading to Baradari and repairs to Zanana Mosque near the ladies bodyguard quarters is in progress.

### 239. TANK AT RANIMAHAL, GOI.KONDA FORT, DISTRICT HYDERABAD

The tank was provided with C.C. bed (1:4:8) using 40mm HBG metal to prevent leakage. The damaged steps at Amberkhana were removed and re-laid as per original plan.

### 240. BANDAR FORT, MACHILIPATNAM, DISTRICT KRISHNA

After earthwork excavation and laying of concrete foundation for reconstruction of breach in the northern wall of the building, the brick masonry wall above the ground level was completed. The work of laying brick-jelly-concrete inside the rooms of customs office, fort office etc. and fixing of barbed-wire fencing over dwarf wall around the building was completed.

### 241. DUTCH CEMETERY, MACHILIPATNAM DISTRICT KRISHNA

Construction of fallen breaches of brick compound wall with CM (1:6) and plastering of the wall and fixing barbed-wire fencing with "L" angle posts over compound wall was completed.

### 242. NAVABRAHMA GROUP OF TEMPLES, ALAMPUR, DISTRICT MAHABOOBNAGAR

The watertightening the leaky roofs of Visva Veera and Arka Brahma Temples, providing fencing over a dwarf wall and construction of a screen wall from the rear side of Padma Brahma Temple to Garuda Brahma Temple to develop the environs are in progress.

### 243. PAPANASI GROUP OF TEMPI.ES, AI.AMPUR, DISTRICT MAHABOOBNAGAR

The laying of pipeline from temple-complex to the Tungabhadra reservoir, laying of lawns around the complex after propagating grass beds and installation of motor pumpset after obtaining the electricity connection were attended to.

### 244. TEMPI.ES OF ALAMPUR, ALAMPUR, DISTRICT MAHABOOBNAGAR

Besides maintaining the existing lawns, the landscaping of the remaining area and the laying of pathways around the reconstructed monuments were attended to.

### 245. BUDDHIST STRUCTURES ON LINGALKONDA, SANK ARAM, DISTRICT VISAKHAPATNAM

The resetting of damaged rock-cut stupas, providing pathways, filling of exposed crevices with CC and clearing of heavy jungle growth to give a unhindered view of the monument are in progress.

### 246. GARBHA-GRIHA AND ANTARALA, RAMAPPA TEMPLE, PALAMPET, DISTRICT WARANGAL

The sunken and damaged flooring inside the *garbha-griha* was removed and re-laid after shifting the *linga* from inside. These *Siva-linga*

was reinstalled. The work of spreading red soil inside the main temple-complex after levelling the ground was completed.

**247.** STONE FORTIFICATION AND FALLEN BREACHES, WARANGAL FORT, DISTRICT WARANGAL

The removal of fallen debris of rain affected structures, stone fortification on the south-east corner and the fallen breaches and stacking of stone members for reuse are in progress.

JAIPUR CIRCLE

**RAJASTHAN**

**248.** ANCIENT SITE, BHANGARH, DISTRICT ALWAR

Repairs to the main entrance gate, north-western portion of Bazar-complex, south and northern parts of fortification wall was taken up with R.R. stone masonry in lime-cement-mortar. Restoration work of platform of Gopinath Temple was done by way of taking out bulged portion, resetting veneering portion with dressed stone and core with R.R. stone masonry. Besides plaster was also done from the inner side of walls and ceiling of Burji matching the original (pls. 169-170).

**249.** DABUR-KI-DEVRI, NEELKANTH, DISTRICT ALWAR

Buried plinth of Devri was exposed partially. Bulged portion of structures was taken out and restored with available serviceable material matching the original (pls. 171-172).

**250.** LAL MASJID, TIJARA, DISTRICT ALWAR

Restoration of wall in the prayer hall of the mosque and portion of staircases was taken-up by R.R. stone masonry besides pointing as per original.

**251.** FORT WALL, BHARATPUR, DISTRICT BHARATPUR

Repairs to the fort wall from curve No. 15 to Ashtadhatu Gate was taken up by dismantling the bulged portion and resetting with R.R. stone masonry including recessed pointing on the face as per the original.

**252.** CHITRASHALA, BUNDI FORT, DISTRICT BUNDI

Repairs to the outer surface of the wall or Chitrashala by dismantling the old and decayed plaster and replastering in lime-cement mortar with colour pigment were done to maintain the original feature.

253. CHITTAURGARH FORT, CHITTAURGARH, DISTRICT CHITTAURGARH

The restoration work of Ghee-ki-Baori was taken up further by fixing missing stones of the wall in lime-cement-mortar after dressing as per the original.

**254.** DEO SOMENATH TEMPLE, DISTRICT DUNGARPUR

Replacement of old and decayed roof-concrete of the *sabha-mcmdapa* was taken up by laying fresh lime-cement-concrete with brick aggregate mixed with waterproofing compound to prevent seepage of water.

255. JAMA MASJID, AMBER, DISTRICT JAIPUR

Face lifting of Jama Masjid was taken up by plastering with lime-cement mortar besides filling of cavities and voids of dome was also taken-up (pls.173-174).

Plates 169-170



169



170

*Bhangarh, ancient site:* 169, *before* and 170, *after conservation*

Plates 171-172



171



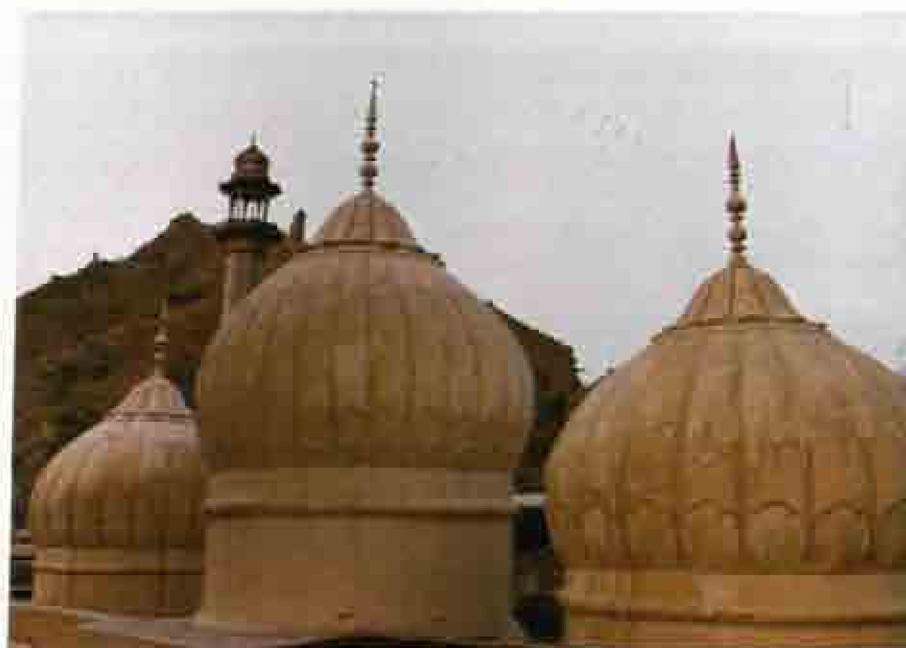
172

*Neelkanth, Dabur-Ki-Devri:* 171, *before* and 172, *after conservation*

**Plates 173-174**



173



174

*Amber, Jama Masjid:* 173, *before* and 174, *after conservation*

**256.** SUN TEMPLE, AMBER, DISTRICT JAIPUR

Outer surface of the temple was plastered with lime-cement mortar and damaged portion of pathway was repaired with R.R. stone masonry.

**257.** EXCAVATED SITE, BAIRAT, DISTRICT JAIPUR

Repairs to the excavated structures by old brick masonry in lime-cement mortar including concreting were attended to.

258. JAISALMER FORT, JAISALMER, DISTRICT JAISALMER

Restoration of collapsed portion of lower fortification wall (opposite Police Chowki) and two collapsed bastion of upper fortification wall was taken up by dressed stone masonry matching the original in veneering and R.R.stone masonry with lime-cement-mortar in the hearting. Filling of sand and earth was also done to the core of the wall.

Parapet-wall of the fort which was damaged due to earthquake was restored in lime-cement mortar as per the original behind the Kanwarpada Road (pls. 175-176).

259. BRAHMA TEMPLE, MANDOR FORT, DISTRICT JODHPUR

Buried structures were exposed by. scientific digging. To avoid any further damage, exposed structures were repaired by using available stones.

**260.** NAHAR SINGHJI-KA-MANDIR, MANDOR FORT, DISTRICT JODHPUR

Repairs to the temple flooring on both sides of the platform by laying fresh lime-cement-concrete base including pointing were undertaken.

**261.** KUMBHALGARH FORT, KUMBHALGARH, DISTRICT RAJSAMAND

Restoration of collapsed roof of Chaugan Pole was taken up by providing and fixing heavy *sal* wood beams including stone slab with brick *kharanja* and concreting over the stone slab.

## KOLKATA CIRCLE

## WEST BENGAL

**262.** DALMADAL CANNON, BISHNUPUR, DISTRICT BANKURA

The laying of brick apron in front of Dalmadal cannon as per original was completed.

**263.** GOKULCHAND TEMPLE, GOKULNAGAR, DISTRICT BANKURA

The boundary wall to the western, northwestern, southwestern corners and northern side were repaired by re-setting the stone members with composite mortar.

Repairing work was also carried out to the stone walls on the northwestern and eastern sides and arches of the *nata-mandapa* by re-setting the stone blocks.

The ornamental stone masonry work was attended to in the eastern side of *nata-mandapa,* roof, arches, corner pillars and also to the ceiling.

**264.** KALACHAND TEMPLE, BISHNUPUR, DISTRICT BANKURA

The conservation of the damaged parts of the temple was in progress along with the filleting work in composite mortar to retain the existing original plaster. Decorative lime punning was also done at required places.

**Plates 175-176**



175



176

*Jaisalmer Fort, collapsed fortification wall:* 175, *before* and 176, after *conservation*

265. RASMANCHA, BISHNUTUR, DISTRICT BANKURA

Damaged apron around the monument was repaired by composite mortar P.V.C. coated chain link with 25 mm thick mild steel plates and brass coated chain link with mild steel angle posts at required places were fitted for the safety and security around the monuments. To retain the old decorative plaster, filleting work was completed in all respects.

266. NANDALALTEMPLE, BISHNUPUR, DISTRICT BANKURA

Extension of barbed-wire fencing, around the Nandalal Temple was done.

267. RADHA GOVINDA TEMPLE, BISHNUPUR DISTRICT BANKURA

Filleting to protect existing plaster and decorative lime punning and plastering in composite mortar were done.

268. RADHASHYAMA TEMPLE, BISHNUPUR, DISTRICT BANKURA

Filleting work to retain the decorative plaster of the temple and barbed-wire fencing with angle iron posts on the front side of the temple were completed.

269. SHYAM RAI TEMPLE, BISHNUPUR, DISTRICT **BANKURA**

Restoration of the central octagonal *sikhara* of the main temple was done to bring back its original shape on the basis of an old photograph besides protecting original decorative lime-plaster by filleting along with the decorative plastering of brickwork as per original. Delicate carvings on special size brick matching the original was also done. Repairing of damaged brick apron around the monument was done by pointing with composite mortar (pls. 177-178).

270. SHAYAMSUNDARATEMPLE, MADANPUR, DISTRICT BANKURA

Octagonal main *sikhara* of the temple was brought back to its original shape and its base was strengthened. The conservation of ornamental , brickwork by special bricks in composite mortar at the corner pillars, interior, ceilings, inner and outer walls and arches- matching the original was attended to besides providing brick apron on all the four sides of the monument.

271. GROUP OF TEMPLES, KALNA, DISTRICT BARDDHAMAN

Apart from the general maintenance, M.S. grill gates were fixed on both sides of the Rajbari Temple-complex and a garden was developed. Brick apron was provided around the Ramesvara Temple and guard wall was constructed in the back side of Lalji Temple-complex.

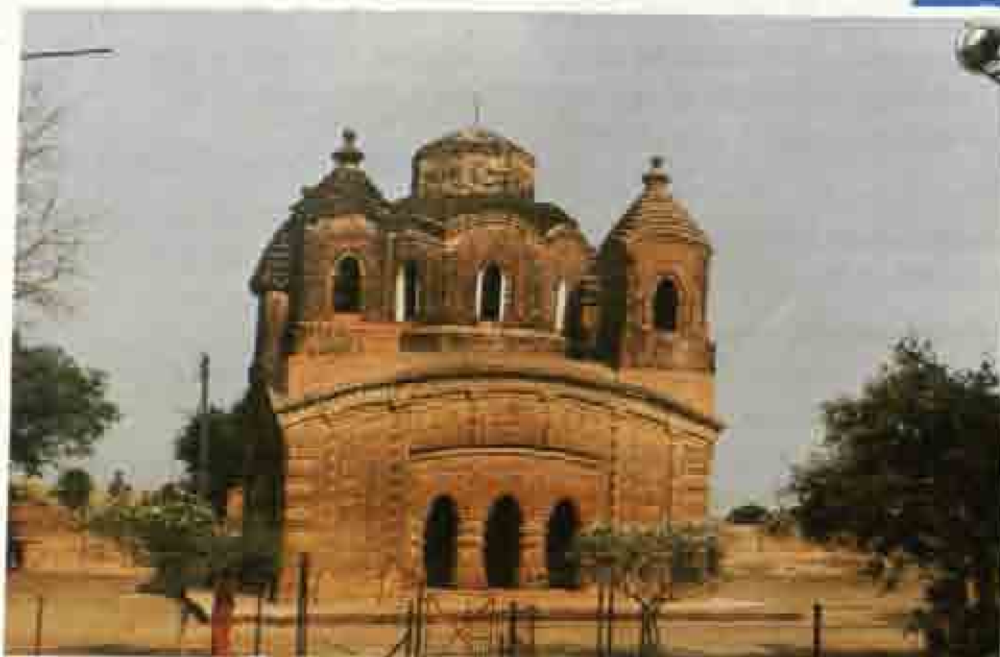
272. JAINA BRICK TEMPLE KNOWN AS SAT DEUL, DEULIA, DISTRICT BARDDHAMAN

In addition to the brickwork, pointing was done to the damaged portion of the temple.

273. TEMPLE OF ICHAI GHOSH, GOURANGAPUR, DISTRICT BARDDHAMAN

The preservation work was attended to by removing the vegetation, pointing and by replacing the damaged bricks at different portions of the temple, besides providing barbed-wire fencing with R.C.C. posts around the protected area.

Plates 177-178



177



178

*Bishnupur, Shyam Rai Temple:* 177, *before* and 178, *after conservation*

214. DAMODARA TEMPLE, SURI, DISTRICT BIRBHUM

The conservation of the vertical cracks inside the temple was attended to by stitching and grouting with lime, cement and *surkhi* and a dwarf boundary wall was constructed to stop thoroughfare besides planting tiny plants for beautification.

275. BRINDABAN CHANDRA THAKUR'S MATH, GUPTIPARA, DISTRICT HUGLI

The damaged portions of the sagged roof of *snana-mandapa* and parapet wall around the roof were dismantled and necessary repairs were undertaken by changing worn-out beams and Burgahs with the new ones below the *snana-mandapa.* The work of re-plastering the room below *snana-mandapa* was also carried out.

276. DANISU CEMETERY, SRIRAMPUR, DISTRICT HUGLI

Preservation of the monument wall was attended to by clearing vegetation, brick-on-edge around the scattered tombs inside the cemetery, re-plastering the tombs and obelisks to arrest further decay and stitching cracks on the roof of the obelisk. Restoration of the damaged portion of existing brick compound wall on left hand side of the cemetery was also completed apart from developing garden within the complex.

277. DUTCH MEMORIAL MONUMENT OF SUSANNA ANNA MARIA, DISTRICT HUGLI

Edging of pathway extending from gateway to the memorial, fixing of turn-style gate and re-plastering the raised platform at required places as per original were done besides developing garden in the complex.

278. EXPOSED STRUCTURE, MAHANAD MOUND, MAHANAD, DISTRICT HUGLI

After the clearance of the accumulated debris from the site, recess pointing to the exposed structure was carried out.

279. MINAR, PANDUA, DISTRICT HUGLI

Nets were provided to the doors and windows of the minar to prevent the entry of pigeons besides some minor repairs.

280. MOSQUE, PANDUA, DISTRICT HUGLI

The work of underpinning and core filling by bricks and mortar and subsequent veneering work on the damaged part of the existing original portion was done along with barbed-wire fencing around the mosque.

281. KOCH BIHAR PALACE, KOCH BIHAR, DISTRICT KOCH BIHAR

Restoration of the royal insignia, originally made by inlay work, in the floor of the Durbar Hall, was completed with due care. For protection of the building, plastering was partly completed on the inner walls of verandah on the northern wing of the palace.

The work of enamel painting on wooden doors, windows, ceilings, walls of the four rooms of the first floor in southern wing of the palace with suitable colours along with polishing the marble floors of Durbar Hall and few adjacent rooms and verandah of ground floor were completed. Painting was done on the outer facades of the palace and on the musical boxes on either side of the approach road.

Apart from laying of brick apron and barbed-wire fencing, the stone boulders of one of the water bodies on the front side of the palace, were pitched for beautification.

282. RAJPAT MOUND, GOSANMARI, DISTRICT KOCH BIHAR

The work of pointing the exposed brick walls was completed and drainage system for water outlet was restored. The work of fencing the excavated site was partly done.

283. METCALFE HALL, KOLKATA

After raking out the old lime-concrete from the roof in the central portion of the building, ferro concrete was relaid. Over this ferro concrete, lime-concrete was re-laid and finished with polishing.

The plastering of wall surfaces at the required places was done besides painting the same with chemical lime. Lime-washing of the dwarf boundary wall, painting work of doors, windows, wooden steps, ceiling etc. were completed along with relaying of marble floor and polishing the same.

284. VICTORIA MEMORIAL HALL, KOLKATA (UNDER CIVIL DEPOSIT WORK)

The work of replacing damaged white marble and black Kota stone slabs in different portions of the terraced floors of the monuments, polishing the marble floor and providing plaster of Paris in the corner staircase and also to the portrait gallery was done. For protection of the damaged floor, re-laying of marble tiles on the floor of the eastern colonnade of the Memorial was completed.

The re-plastering on the staircase of the first floor National Leader's gallery, painting in the Restorer's rooms, its annexe and also the CTT room were completed. Pointing of marble joints of the pedestals of different statues displayed in the monument was also attended to.

Repairs to the bulged-out retaining wall of northeastern corner with its adjacent floor and boundary wall of the northern side were completed.

On all the doors and windows of the Durbar, Hall, windows of the National Leader's gallery, G.I. nets were provided besides fixing glass door in the entrance of the Durbar Hall.

The work of providing barbed-wire fencing on eastern side was also completed.

285. CHAMKATI MASJID, GOUR, DISTRICT MALDAH

After the clearance of vegetation, structural repairs were attended to wherever required.

286. LUKOCHURI GATEWAY, GOUR, DISTRICT MALDAH

The gate of the monument was restored by necessary brick works and plastering.

287. DAKHIL DARWAJA, GOUR, DISTRICT MALDAH

Fixing of barbed-wire fencing on RCC posts around the monument and iron and cattleproof gates to prevent thoroughfare was done.

288. KOTWALI DARWAJA, GOUR, DISTRICT MALDAH

The restoration work of the damaged portion of the western side of the Darwaja was executed by bricks in lime-*surkhi* mortar matching with the original.

289. QUTB SHAI MASJID, ADINA MOSQUE AND EKLAKHI MAUSOLEUM, PANDUA, DISTRICT MALDAH

The work of painting M.S. angle posts of barbed-wire fencing around the monument was completed in all respect apart from clearance of vegetation from the respective monuments and their adjacent protected area.

290. JOHN PIECE'S TOMB, MEDINIPUR, DISTRICT MEDINIPUR

After removal of encroachment around the monument, ornamental brick work with composite mortar and lime punning of the required portions of the monument was executed.

291. KARAMBERA FORT, GAGANESWAR, DISTRICT MEDINIPUR

The vegetational growth inside the monument was removed and the wooden door of the main entrance of the fort was repaired.

292. HAZARDUARI PALACE AND IMAMABARA, MURSHIDABAD, DISTRICT MURSHIDABAD

The construction of boundary wall with iron posts for barbed-wire fencing on the eastern side was completed.

At Imambara the old and damaged lime-concrete from the roof terrace on eastern side was replaced with new lime-concrete and finished with *lime-surkhi* mortar. Besides this after raking out and stripping of old damaged pulverized plaster from the inner side parapet walls, *lime-surkhi* plastering was applied as per original existing plaster. The work of restoration of the parapet wall was done as per original work.

293. KATRA MOSQUE, SABJI KATRA, DISTRICT MIRSHIDABAD

After the removal of old damaged beam of the adjacent chamber of Murshid Quli's Tomb, new *sal* beam was provided for the safety of the tomb below the main staircase. After raking out dead mortar from the joints of bricks both from the walls and floors of the monument, pointing work was completed. Inside the arch of the minar was re-laid with *lime-surkhi* mortar. Filleting work with *lime-surkhi* mortar for protecting the old plaster of the mosque and adjoining domes was partly completed.

294. MOSQUE AND TOMBS OF ALIVARDI KHAN AND SIRAJ-UD-DAULLAH, KHOSBAG, DISTRICT MURSHIDABAD

The damaged parts of the compound wall was attended to by necessary brick work as per original on western, southern and northern sides. The old pulverized damaged plaster from the said walls were removed and necessary re-plastering was done to stop seepage of water. Old damaged copings of the compound wall of the monument was removed and the work of re-laying it with thick lime-concrete was carried out.

295. RESIDENCY CEMETERY, BABULBOND (BAHARAMPUR), DISTRICT MURSHIDABAD

Brick work on the tombs inside the cemetery with composite mortar as per existing shape and colour was carried out. The work of re-laying thick lime-concrete after removing the old and damaged lime-concrete over the graves/tombs was also carried out. For the beautification of the cemetery, a garden was developed within the area.

296. BALLALDHIPI, BAMANPUKUR, DISTRICT NADIA

The work of laying new tiles to the damaged portion of paved pathway all along the main structure was completed. Proper slope was provided to the adjacent area of the exposed walls for draining out rain-water besides developing grass carpet in the complex.

## SIKKIM

297. CORONATION THRONE OF NORBUGANG, YUKSOM, DISTRICT WEST SIKKIM

Restoration and repairs to the ancient stone boundary wall with mud-mortar as per original are in progress. The work of repairs and restoration of the ancient stone masonry of Coronation Throne by removing cement-pointing and re-pointing in focal mortar as per original was completed. The cavity was grouted by the application of water repellent on the throne. Low height M.S. iron grill all around the-monument was fixed. Arrangements for supplying purified' drinking water were made for the visitors (pls. 179-180).

298. DUBDI MONASTERY, KHEOCHAD PHALRI, DISTRICT WEST SIKKIM

The pathway leading to the monastery was upgraded. The work of laying surface drains and shifting of water reservoirs from frontal lawn to the back side of the monastery was completed. Repairing and pointing of roof of the monastery were partly done.

299. RABDENTSE SITE OF ANCIENT CAPITAL OF SIKKIM, FOREST AREA OF PEMAYANGTSE MONASTERY (TIKJUK), DISTRICT WEST SIKKIM

Thorough clearance and removal of thick vegetation from the monuments and the entire area were followed by the restoration work of broken and missing portions of dry rubble stone masonry wall with mud-mortar as per the existing adjacent wall. The stone walls were stabilized with polymer modified cement grouting and pointing. To expose the structures, trees and debris were removed from the site. One of the collapsed *chortens* of the palace area was restored as per original. The stone masonry wall of the raised religious platform which was damaged at places was also restored and barbed-wire fencing with three ply barbed-wire fixed on RCC poles was provided all round the complex. A cattle trap made of MS angle iron was also fixed at the main entrance to the palace area. The huge *chorten* in the complex was restored with available local stones (pls. 181-182).

LUCKNOW CIRCLE

## UTTAR PRADESH

300. EXCAVATED SITE, ORAJHAR, DISTRICT BALRAMPIR

Barbed-wire was provided around the excavated site at Orajhar to safeguard the site from any encroachment.

301. CHAURASI GUMBAZ, KALPI, DISTRICT JALAUN

Laying of lime-concrete and lime-plaster over the roof terrace and fixing of stone in *chajjas* are in progress.

302. JHANSI FORT, JHANSI, DISTRICT JHANSI

Construction of boundary wall around the fort to check the encroachment and for environmental development was in progress.

Structural repairs with C.R. masonry and R.R. stone masonry in lime-mortar was undertaken near the Ganesa Temple.

303. MEMORIAL CEMETERY, JHANSI, DISTRICT JHANSI

Repairs to the boundary wall and stone flooring in the cemetery were completed.

Plates 179-180



179



180

*Coronation throne of Norbugang, Yuksom:* 179, *before* and 180, *during conservation*

**Plates 181-182**



181



182

*Site of ancient capital of Sikkim, Rabdentse:* 181, *before* and 182 *after conservation*

304. AMJAD ALI SHAH'S MAUSOLEUM, LUCKNOW, DISTRICT LUCKNOW

The damaged arches, pillars, cornices, miniature domes of mausoleum were repaired by way of underpinning. Simple moulded and richly carved plaster in stucco and Alam designs were reproduced as per original. The decayed stone *chhajjas* were replaced by the new ones. The platform was levelled and plinth protection was provided. The staircases were restored.

305. ASAFUD-DAULA'S IMAMBARA, LUCKNOW, DISTRICT LUCKNOW

The parapet wall of the second floor of the main building and moulded arches, ceilings, cornices and pillars were restored with thick lime-plaster matching the original.

306. JAMA MASJID, LUCKNOW, DISTRICT LUCKNOW

Restoration work of the damaged southern dome of Jama Masjid was completed.

307. RESIDENCY-COMPLEX, LUCKNOW, DISTRICT LUCKNOW

Structural repairs to the Model Room was completed. The damaged doors and windows were repaired and sandstone flooring provided in the basement. Sunshades over the ventilations in the basement were also provided.

308. KEERAT SAGAR, MAHOBA, DISTRICT MAHOBA

C.R. stone masonry work with *lime-surkhi*-mortar was undertaken in the retaining wall and staircases of the Baradari as per original. Flag-stone flooring with lime-mortar was provided in the Baradari. Roof of the temple near the gate of Keerat Sagar was watertightened.

309. EXCAVATED SITE, SAHET (SRAVASTI), DISTRICT SRAVASTI

Construction work of the boundary wall with M.S. grill (railing) at Sahet was undertaken. The work is in progress.

## MINI CIRCLE

## GOA

310. AGUADA FORTRESS (UPPER), CANDOLIM, DISTRICT NORTH GOA

The fortification walls towards sea side were pointed with combination mortar and cavities in the bed-rock underlying the fort-wall were filled with cement-concrete. The entrance walls were de-plastered and re-plastered with combination lime-mortar and top finished with whitewash.

311. ARCHAEOLOGICAL MUSEUM, OLD GOA, DISTRICT NORTH GOA

The concrete apron with gutter were provided for entire portion on the rear side of the building. The walls of lobby, key gallery and reserve collection were de-plastered and re-plastered with lime-mortar and top finished with oil bound distemper.

312. BASILICA OF BOM JESUS, OLD GOA, DISTRICT NORTH GOA

The roof of the cloister which was decayed and sagged was repaired by replacing with new wooden beams, rafters and provided with G.I. sheet below the tiles.

Compound wall around the church-complex with laterite stones was constructed.

313. CHAPEL . OF ST. CATHERINE, OLD GOA, DISTRICT NORTH GOA

The exterior walls and the facade were de-plastered and re-plastered with lime-mortar and finished with wash (pls. 183-184).

**314.** CHURCH AND CONVENT OF ST. FRANCIS OF ASSISI, OLD GOA, DISTRICT NORTH GOA

The exterior wall were painted with water-proofing cement paint. The damaged seating arrangement and panel paintings on the northern and southern walls of choir were dismantled and the wall portion was deplastered and re-plastered in combination mortar after stitching the cracks with copper dowels with T section girder, while the panel paintings were strengthened with marine plywood at their back and refixed to its original place.

**315.** CHURCH OF ST. AUGUSTINE, OLD GOA, DISTRICT NORTH GOA

For the first time in recent times, scaffolding was erected to the tower and the trees grown along with roots were removed. The sunken basalt stone slabs of floor were removed and concrete was laid to refix the slabs to its original place.

316. CHURCH OF ST. CAJETAN, OLD GOA, DISTRICT NORTH GOA

The patch plastering was done to the facade while the entire exterior was painted with waterproof cement paint (pls. 185-186).

**317.** CHURCH OF OUR LADY OF ROSARY, OLD GOA, DISTRICT NORTH GOA

The laterite steps of bell tower which were missing were repaired and made presentable.

**318.** FORTIFICATION WALL, AGUADA FORTRESS (LOWER), CANDOLIM, DISTRICT NORTH GOA

The rain-water which was stagnating in the moat due to deep ditches and stacked soil were cleared and levelled providing proper slope towards the sea.

**319.** SE' CATHEDRAL, OLD GOA, DISTRICT NORTH GOA

The thick coat in combination mortar which replaced the basal mouldings of colossal pillar base in laterite got cracked and peeled off due to extra thickness. This was attended to by applying very often thick coat of mortar and refixing freshly carved laterite stones with an interlocking system of tenon and slot, followed by lime-plastering. This repair was undertaken on the first two pillars inside the main entrance (pls. 187-188). The roofs of both side aisles were watertightened with waterproofing material and the top applied with penitronix silicon coating to avoid leakage.

## PATNA CIRCLE

# BIHAR

**320.** EXCAVATED REMAINS, VIKRAMSILA MONASTERY, ANTICHAK, DISTRICT BHAGALPUR

Eastern part of the northern arm of monastic-complex was consolidated by way of under-pinning, pointing and watertightening of top three courses using lime-57/r£/7/-mortar and special size bricks as per original. Upper and lower terraces of northeastern face of the main stupa were also consolidated. Bulged-out portions of walls were brought to plumb by resetting and the floor of the terrace was laid with lime-concrete.

Plates 183-184



183



184

*Chapel of St. Catherine, Old Goa:* 183, *before* and 184, *after conservation*

Plates 185-186



185



186

*Chapel of St. Cajetan, Old Goa:* 185, *before* and 186, *after conservation*

Plates 187-188



187



188

*Pillar base, Se' Cathedral, Old Goa:* 187, *before* and 188, *after conservation*

321. B( ODIUM STUPA KESARIYA DISTRICT EAST CHAMPARAN

The conservation of 30 metre wide strip from drum portion atop to the base circle of the stupa was attended to by consolidating base circle and by pointing the lower courses and resetting of upper part. Polygonal patterns and the cells were also conserved by resetting, pointing and watertightening of top three courses using special size bricks and *lime-surkhi* mortar. The floors of the cells were laid afresh with *lime-surkhi* mortar as per original. The work is in progress.

322. BARABAR CAVES, BARABAR, DISTRICT JEHANABAD

M.S. Grill fencing was provided for the safety of the site. Vegetational growth over the hillock was uprooted and the ditches were filled up to check the percolation of rain-water. Collapsible M.S.Grill gates to three caves at Barabar were provided to check the unwanted entry.

323. MUNDESVARI DEVI TEMPLE, PAURA, DISTRICT **KAIMUR**

Roof of the temple was repaired by lime-concrete and floor of the *mandapa* was laid afresh. Scattered architectural fragments were reset in appropriate manner. Damaged stones of staircase were replaced by new ones and the pathway was paved with stone slabs in accordance with the original.

324. EXCAVATED REMAINS, KOLHUA, DISTRICT MUZAFFARPUR

Votive stupas and miniature shrines to the north of the main stupa were consolidated by pointing and watertightening. The site was fenced with M.S. Grill over dwarf wall.

325. EXCAVATED REMAINS, NALANDA, DISTRICT NALANDA

Structural repairs to monastery Nos. 5 and 6, temple Nos. 12 and 14, miniature shrines and votive stupas were attended to by way of resetting, watertightening and pointing, Pathways were laid with lime-concrete for easy movement of visitors. Boundary wall was raised on north and west sides.

326. GROUP OF MOM UMENTS, RAJGIR, DISTRICT NALANDA

The stupa Giriyak was consolidated by resetting and pointing in recess. Newly excavated stupa at the southern tip of Rajgir was conserved by pointing and underpinning the lower part *of* the structure and eastern and southern faces were restored partly with special size bricks laid in lime-mortar. Construction of boundary wall to the site is also in progress.

327. EXCAVATED REMAINS, PATALIPUTRA, KUMRAHAR, DISTRICT PATNA

Low lying area of parking and entrance of the site was raised and developed to stop water logging during rainy-season.

328. TOMB OF HASAN SHAH, SASARAM, DISTRICT ROHTAS

Damaged doors and windows were repaired. The mesh was replaced by fresh one and grill doors were re-painted. Surrounding lawns were cleaned and developed.

329. TOMB OF SHER SHAH SI RI, SASARAM, DISTRICT ROHTAS

The cracks developed in the enclosure wall of the main tomb were repaired by resetting ashlar stones in lime-mortar. The courtyard was paved with stone slabs.

## JHARKHAND

330. JAMA MOSQUE, HADAF, DISTRICT SAHEBGANJ

Pathway was laid with lime-concreting. Outlet channels were provided to drain out the rainwater from the monument.

## UTTAR PRADESH

331. TOMB OF ABHIMAN, MEHNAGAR, DISTRICT AZAMGARH

The floor of verandah around the main chamber was laid with lime-concrete as per original. Minor cracks were filled up and patch plaster was done to the walls.

332. TOMB OF LORD CORNWALLIS, GHAZIPUR, DISTRICT GHAZIPUR

Pathway around the tomb was paved with stone slabs matching with the monument over a fresh concrete base. The work is in progress.

333. OLD SHAHI FORT, JAUNPUR, DISTRICT JAUNPUR

In continuation of the previous year's work *(1999-2000,* p.321), fort wall was partly restored towards east and south consisting of brickwork on the inner side and ashlar stone veneering on outer face.

334. EXCAVATED REMAINS, KUSHINAGAR, DISTRICT **KUSHINAGAR**

Platform of Nirvana Temple and stupa was consolidated by pointing, underpinning and watertightening. Minor structures near the stupa were also conserved by resetting and pointing in recess.

335. CIIOWKHANDI STIUPA, SARNATH, DISTRICT VARANASI

First terrace on eastern side of the stupa was partly restored upto a desired level and watertightened from the top. The cavity in the core of stupa which was left after earlier excavation was filled up with sand to avoid damage to the superstructure. The work is in progress. M.S. Grill fencing over dwarf wall towards north, west and east is in progress.

336. DHARAHARA MOSQUE, VARANASI, DISTRICT VARANASI

Cracks developed in the walls facing Ganges were filled up by grouting. Lower platform was paved with sandslabs over fresh lime-concrete base as per original.

337. EXCAVATED REMAINS, SARNATH, DISTRICT VARANASI

Votive stupas and minor structures in Chankama area of Mulagandha Kuti were conserved by pointing in recess, resetting and watertightening.

338. JAI SINGH'S OBSERVATORY, MAN MAHAL, VARANASI, DISTRICT VARANASI

Damaged floor of the front hall near the entrance was laid with marble stone slabs.

339. LAL KHAN'S TOMB, RAJGHAT, VARANASI, DISTRICT VARANASI

Western boundary was fenced by M.S. Grill over dwarf wall to check unwanted entry. A heavy M.S. Grill gate was also provided.

## SRINAGAR CIRCLE

## JAMMU & KASHMIR

340. ANCIENT TEMPLE, MARTAND, DISTRICT ANANTNAG

Chain link fencing was provided over dwarf wall along with mild steel grill gate towards western side in order to enclose a portion of the protected area in front of the monument.

341. ANCIENT FORT, AKHNOOR, DISTRICT JAMMU

The southern side fortification wall along with bastion was conserved by way of brick masonry and pointing in combination mortar after carefully dismantling the bulged-out and cracked portions.

**342.** ANCIENT TEMPLE, BILLAWAR, DISTRICT KATHUA

After carefully removing the decayed and pulverized stones from the base of the temple facing south-east, ashlar stone masonry with highly ornamental and carved stones was substituted as per original pattern.

**343.** ANCIENT PALACE, SHEY, DISTRICT LEH

Structural repairs to the collapsed portions at different levels including traditional parapet wall and decorated wooden windows were carried out following original pattern.

**344.** ANCIENT GUMPHA, THIKSEY, DISTRICT LEH

The roof terrace of the south-east portion of the Lamokhang was rendered watertight including mud-plaster of wall and providing glazed wooden windows.

345. HEMIS GUMPHA, HEMIS, DISTRICT LEH

The bulged and crumbling portion of Chansa Chum was conserved by replacing decayed wooden members such as poplar poles, beams, brackets including repairs to the damaged mud brick walls, mud-plaster and mud-concrete as per original pattern.

346. BUDDHIST GUMPHA, PHYANG, DISTRICT LEH

A portion (two rows) of sagged roof to Tsogskhang was conserved by replacing its rotten wooden rafters, twigs, grass and mud-concrete.

347. BUDDHIST MONASTERY, LAMAYURU, DISTRICT LEH

A buttress wall was provided on the southern side of the main monastery, which was highly eroded in order to safeguard the over hanging structure from being damaged.

**348.** ANCIENT PALACE, LEH, DISTRICT LEH

In continuation of the previous year's work *(1999-2000,* pp.322-329), the western side fort wall was conserved with coarsed rubble stone masonry upto level six besides its *parikrama* and passage towards southwestern side were also conserved (pls. 189-190).

**349.** STUPA, TISSERU, DISTRICT LEH

Sun-dried brick masonry and traditional mud-plastering were carried out in a portion of stupa levels fifth and sixth as per original pattern. The work is in progress.

350. AVANTISVARA TEMPLE, AVANTIPUR, DISTRICT **PULWAMA**

M.S.Grill fencing over dwarf wall was provided in a portion towards north side in order to enclose the protected area of the monument.

Plates 191-192



191



192

*Chemmanthitta, Siva Temple, prakara wall:* 191, *before* and 192, *after conservation*

Plates 193-195



193



194



195

*Pallimanah, Siva Temple, northern cloister:* 193, *before*, 194, *during* and 195, *after conservation*

were laid. The dead and weathered plaster over the walls and ceilings of the magazine room was removed.

362. BEKAL FORT, PALLIKARE, DISTRICT KASARGOD

The out-of-plumb and cracked wall of bastion on the eastern side was dismantled upto the cracked portion. After strengthening the foundation and consolidating the earth inside, the walls were grouted and re-constructed as per the original.

363. SIVA TEMPLE, CHEMMANTHITTA, DISTRICT **THRISSUR**

*Prakara-wall* with coping on the northern side was re-constructed as per the existing one (pls. 191-192).

**364.** SIVA TEMPLE, THIRUVANCHIKULAM, DISTRICT THRISSIR

The original mouldings on the walls of the shrine of warrior god were exposed and reproduced after re-plastering the walls with hand grinded lime-mortar.

365. SIVA TEMPLE, PALLIMANAH, DISTRICT THRISSIR

The roof of northern cloister with Mangalore tiled roof was conserved properly after replacing the rotten teak wood members with the new ones. Proper drainage system was provided after exposing the original (pls. 193-195).

366. TENKAILASANATHA (VADAKKUNATHA) TEMPLE, THRISSIR, DISTRICT THRISSIR

The bottom tire (third tire) of southern *gopuram* was conserved properly after replacing the damaged rotten wooden members with new ones as per original. Laying of copper tiles on the southern side of the roof of the Sree Rama Temple Shrine was completed after replacing the rotten teak wood members as per the original (pis. 196-197).

367. JAINA TEMPLE, SULTAN BATTERY, DISTRICT WYNAD

Stone apron around the main shrine on the north-east and southern sides was completed after providing necessary drainage system.

## TAMIL NADU

368. FORT AT VATTAKOTTAI, DISTRICT KANYAKUMARI

The out-of-plumb fort wall on the north-east comer including the core portion was restored after underpinning and grouting the cracks on the walls. The weathered and dead material on the roof of the pillared-*mandapa* on the east and north sides was removed. Removal or accretionary walls was also completed.

369. SRI BHAGAVATHI TEMPLE, CHITRAL, DISTRICT KANYAKUMARI

Front *pillared-mandapa* was watertightened after dismantling the dead and weathered material. The out-of-plumb pillars, capitals and ceiling slabs were reset (pls. 198-200).

370. ANCIENT SITE, KUNNATHUR, DISTRICT TTRUNELVELI

A portion of the site on the east and southern sides was fenced to avoid the encroachment.

**371.** SRI VALISVARA TEMPLE, THIRUVALISVARAM, DISTRICT TIRUNELVELI

Watertightening of the terrace of Amman

Plates 196-197



196



197

*Tenkailasanatha Temple, southern gopura:* 196, *before* and 197, *after conservation*

Plates 198-200



198



199



200

*Chitral, Sri Bhagavati Temple, pillared-mandapa:* 198, *before*, 199, *during* and 200, *after conservation*

Shrine was completed after reducing the dead and weathered mortar load. The out-of-plumb pillars and wall were reset and the broken ceiling slabs and capitals were replaced with the new ones (pls.201-202).

## VADODARA CIRCLE

## DAMAN & DIU

372. CHAPEL OF OUR LADY OF ROSARIO, MOTI DAMAN, DAMAN

In continuation of the last year's work *(1999-2000,* p.335), the decayed wooden ceiling of the prayer hall (Nave), the ceiling of the choir, wooden staircase and its decorative railings were replaced with fresh Bulsar country teak wood members with mouldings as per original. The dead plaster of the walls was removed and replastered with lime-cement-mortar with moulding wherever existed as per original. The damaged electrical wiring was removed and rewiring was done using I.S.I, approved wires and fixtures. The work remained in progress.

373. CHURCH OF OUR LADY OF REMEDIOS, MOTI DAMAN, DAMAN

Two coats of oil paint was applied on the doors, windows and other wood works after scraping the old paint. The church walls were painted and whitewashed. The broken Mangalore roof tiles were also replaced with new tiles and roof was made watertight.

374. FORT WALLS, MOTI DAMAN, DAMAN

G.I. Barbed-wire fencing on angle iron posts with M.S. grill gate was provided around the open land near the Light House bastion. The missing pipe railing was also provided at the Light House bastion for the safety of visitors.

375. RUINED CHURCH, MOTI DAMAN, DAMAN

In continuation of the last year's work *(1999-2000,* p.335), the decayed and damaged wall of the church was underpinned in lime-cement and sand-mortar mixed with waterproofing compound and colour oxide to match the existing surface. The dead lime-concrete flooring around the central courtyard and open area on the west of the sanctum was removed and relaid in lime-cement-concrete using gravel aggregate. The missing rubble stone masonry wall corners, arches, niches etc., were restored as per original.

376. FORT AND INSIDE BUILDINGS, DIU

In continuation of the last year's work *(1999-2000,* p.335), the dead cement-plaster was removed from the entrance gate and walls of fort and re-plastered with lime-cement-mortar after raking out joints. Decayed, damaged and highly worn-out ashlar stone masonry of St. George bastion and its adjoining portions were taken out with the help of chain pulley and reconstructed with new fine chisel dressed Bela stone. Ashlar masonry in L.C.M. in 1:1:6 lime-cement-sand-mortar. Ashlar stone masonry was pointed in lime-cement-mortar matching the original. The work remained in progress.

377. OLD MOSQUE (JAMI MASJID), DIU

Due to earthquake, cracks developed in minarets of the mosque were grouted and sealed. Treated portions were painted with matching colour.

378. ST. PAUL CHURCH, DIU

In continuation of the last year's work *(1999-*

Plates 201-202



201



202

*Thiruvalisvaram, Sri Valisvara Temple:* 201, *before* and 202, *after conservation*

*2000,* p.335), safety measures were taken up for the protection of the decorated wooden altar inside the church by providing copper strip in place of the missing wooden support behind the main wooden altar. Cracks developed on the ceiling and walls, due to earthquake, were also sealed and watertightened. The wood work was painted with enamel paint. Interior walls were painted with oil bound distemper and exterior walls with snowcem.

## GUJARAT

### 379. ACHYUT (KIKI) BIBI'S MASJID AND TOMB, DUDHESHVAR, DISTRICT AHMEDABAD

The earthquake caused major damage to the mosque. Both the fallen minarets were tilted and some portions hanging besides some cracks developed and joints widened. The dislodged and hanging portions of both the minarets were dismantled carefully and lowered down and stacked properly for reuse after detailed documentation, numbering and photography.

### 380. ANCIENT SITE, LOTHAL, DISTRICT AH.MEDABAD

In continuation of the last year's work *(1999-2000,* p.337), the tilted western wall of the dock from southend corner towards north was dismantled partly layer-wise and rebuilt in lime-cement mortar after replacing the worn-out bricks with specially manufactured bricks in conformity with the original. The silt deposit from the dock was also removed to the extent to which the repairs were attended to. The loose, dislodged brick masonry structures of Acropolis, bath, sewage lines were carefully dismantled after detailed documentation, photography, duly numbering and preparing sketches. The dismantled brick masonry of excavated remains were reset properly in lime-*surkhi-sand* mortar and the joints pointed. Rough lime-surkhi plaster was applied to mud brick walls wherever the same was found missing. The earthen soak-jar of the drain near the well was mended with lime-*surkhi* mortar.

### 381. BABA LAULI'S MASJID, BEHRAMPUR, DISTRICT AH.MEDABAD

To conserve the brick masonry pillars and *bailies* supports were provided and cracks filled and sealed and debris removed.

### 382. BHADRA GATE AND TOWER, AHMEDABAD, DISTRICT AH.MEDABAD

The repairs to major collapsed portions of the southern tower and vertical cracks developed in the northern tower as well as other parts of the tower, were attended to. These damages were thoroughly video/photo documented and the fallen debris was removed after sorting out the useful bricks. Immediate preventive measures such as dismantling of vulnerable portions, grouting and stitching of cracks were taken up.

### 383. BIBIJI MASJID, RAJPUR-GO.MTIPUR, DISTRICT AH.MEDABAD

In continuation of the last year's work *(1999-2000,* pp.335-337), in Muluk Khana Mosque the broken architectural members, columns, lintels, capitals were also replaced with new ones as per original after giving masonry/wooden *balli* support. The dead lime-concrete of the terrace was removed and fresh lime-concrete was laid in south-east corner to prevent leakage.

### 384. BIBIJI-KI-MASJID, RAJPUR-HIRAPUR, DISTRICT AHMEDABAD

The monument was damaged severely as the

two upper storeys of the northern minar were fallen down and southern minar bulged out with cracks developed and joints widened due to earthquake. After dismantling,documentation and slacking, conservation was attended to the dislodged and damaged portion of the north minar properly. Stone members fallen on roof terrace were also lowered down and southern minar was provided with steel rope, tied as temporary measures.

385. GREAT MOSQUE, SARKHEJ, DISTRICT AHMEDABAD

The cracks of roof terrace developed due to earthquake were grouted and sealed.

386. RUINED BUILDING, DHOLKA, DISTRICT AHMEDABAD

Due to earthquake, the damaged portions of the building was barricaded for removal of debris.

387. JAMI MASJID, MANDAL, DISTRICT AHMEDABAD

Major damage caused to Jami Masjid due to earthquake, were attended to by dismantling the loose portions, removal of debris and providing temporary protection to the roof.

388. JAMI MASJID, DHOLKA, DISTRICT AHMEDABAD

Dismantling of the dislodged minar, grouting and sealing of cracks of roof terrace and removal of debris were attended to.

389. JAMI MASJID, MANEK CHOWK, DISTRICT AHMEDABAD

Dislodged stone *jalis* were taken down. Cracks in the terrace were filled and ceiling stone replaced.

390. MALIK ALAM'S MOSQUE, TOLA NAKA, DAM LIMDA, DISTRICT AHMEDABAD

Due to earthquake stones from upper storeys were fallen down and the lower balcony stones and *chhajja* were damaged. Cracks developed and joints widened. Loose and dislodged ashlar stones taken down and roof cracks were filled and made watertight.

**391.** MANSAR TANK AND SHRINES, VIRAMGAM, DISTRICT AHMEDABAD

In continuation of the last year's work *(1999-2000,* p.337), badly dislodged, sunken sandstone steps along with landing embankment, miniature shrines and retaining wall near south-east corner of the tank were dismantled after proper documentation. The dismantled steps, landing, paved embankments, miniature shrines and the retaining walls were reset properly in lime-mortar after replacing the decayed stones with the new ones duly dressed and moulded as per original. The work is in progress.

392. RAIPURGATE, AHMEDABAD, DISTRICT AHMEDABAD

The loose, shaken and weathered north-east corner was dismantled and taken up for resetting after replacing worn-out stones with dressed and carved stones to match the original. Matching sandstones from Dhrangadhra quarry was procured and the work of dressing and carving is in progress for replacement of damaged ones.

Because of the earthquake the facade stones over arch have fallen down on north. Arch was dislodged and ashlar stone masonry bulged out and

joints widened. Their conservation was attended to by reconstructing the damaged and fallen ashlar stone masonry using old stones and replaced the damaged and missing stones with new ones and watertightened.

393. MOSQUE OF AHMED SHAH'S, AHMEDABAD, DISTRICT AHMEDABAD

The fallen architectural members of the facade of the mosque above central arch between the buttresses of minars collapsed due to earthquake, were sorted out and stacked separately. Fresh sandstone matching the original were carved out for replacement of missing components like highly ornate brickbats and bottom courses of southern minar and other intricately carved stones. The loose and shaken stones were dismantled after numbering, video and photographic documentation. Resetting of dismantled parts in *lime-surkhi*-sand-mortar with 1/4 part of cement is in progress.

394. PAVILION, SARKHEJ, DISTRICT AHMEDABAD

Pillar capital was damaged and columns of pillar pavilion were disloged due to earthquake. Temporary wooden supports were provided to prevent collapse.

395. SAIYED MUBARAK TOMB, SOJALI, DISTRICT AHMEDABAD

This protected area around the monument was enclosed with G.I. barbed-wire fencing on angle iron posts, with mild steel gates to prevent encroachments and misuse of protected premises.

396. SAIYED USMAN'S MOSQUE AND TOMB, USMANPURA, DISTRICT AHMEDABAD

Due to earthquake central dome supporting the columns of tomb along with capitals, beams and ring stones have fallen down. Pillar capital was cracked and flaked, besides joints were widened and cracks developed. Temporary brick masonry and wooden supports were provided and loose portions were dismantled, cracks of roof terrace filled and debris removed.

397. SHAH ALAM'S TOMB WITH ALL SURROUNDING ANCIENT BUILDINGS AND MOSQUE OF SHAH ALAM DARWAJA, DISTRICT AHMEDABAD.

The cracks and joints in Vaju pavilion, Shah Alam Tomb and Kadme Rasul Tomb developed due to earthquake, were stitched, grouted, sealed and re-plastered.

398. SIDI BASHIR'S MINAR AND TOMBS (SHAKING), USMANPURA, DISTRICT AHMEDABAD

Cracks and joints developed due to earthquake were grouted and sealed and copper flat bracing was provided in three upper storeys of both the minars for strengthening the building.

399. TOMB OF MIR ABU TURAB, BACK OF CALICO MILL, JAMALPUR, DISTRICT AHMEDABAD

Due to earthquake columns and arches supporting roof of corridors were dislodged and arches opened. Cracks developed and joints widened. Wooden supports were provided, cracks filled and barricaded.

400. JAMI MASJID, KHAMBHAT, DISTRICT ANAND

Major damage caused to the monuments due to earthquake, cracks developed in northern and northeastern wall and roof terrace were grouted and sealed besides pointing the ashlar stone masonry wall.

401. DARBAKGADH, SIHOR, DISTRICT BHAVNAGAR

Minor damage caused due to earthquake, were attended to. The bulged walls were reset and the cracks were granted and sealed.

402. TALAJA CAVES, TALAJA, DISTRICT BHAVNAGAR

The missing rock-cut pillars and a wall portion were reconstructed in R.C.C. and plastered. The cavities of the rock ceiling and floors were filled.

403. JAMI MASJID, CHAMPANER, DISTRICT GODHRA

In continuation of the last year's work *(1999-2000,* p.337), the missing ashlar stone masonry of the courtyard was restored with proper dressing and moulding of the stones. The missing brackets, pilasters and lintels of the window were restored with moulding and carving as per original. The stone paved pathway was laid on lime-concrete base leading to entrance porch of the mosque.

404. PANCH MAHUDA-KI-MASJID, PAVAGADH, DISTRICT GODHRA

In continuation of the last year's work *(1999-2000,* p.337), the damaged ashlar stone masonry platform of the adjoining tomb was repaired as per original. The bulged-out ashlar stone masonry was dismantled after documentation and reconstructed as per original. Some fallen architectural members were identified and reset in their original position.

405. RUINED TEMPLE (LAKULISA), PAVAGADH, DISTRICT GODHRA

In continuation of the last year's work *(1999-2000,* p.337), some fallen architectural stone members of the temple were identified and reset in their original position. The roof of the *sabha-mandapa* was watertightened by way of core filling with rubble stone masonry, filling up and sealing of the cracks and joints with lime-cement-mortar.

406. DWARKADHISH GROUP OF TEMPLES, DWARKA, DISTRICT JAMNAGAR

Cracks were developed in Dwarkadhish Temple with joints opened and widened. Stone *kalasa* of Radhakrishna Temple collapsed and two veneering stones of *sikhara* of Venimadhava Temple were bulged out. *Yogimukha* has fallen down and joints widened. Cracks were also developed in compound wall with bulging. These cracks were grouted and sealed. Opened joints were filled and pointed, fallen and bulged-out stones of *sikhara* of Venimadhava Temple was restored. New stone *kalasa* was provided to the Radhakrishna Temple as per original.

407. ASHOKAN ROCK EDICTS, JUNAGADH, DISTRICT **JUNAGADH**

Cracks were developed in the building over the rock-edicts due to earthquake. These cracks were grouted and sealed and building was painted.

408. BUDDHIST SITE, INTWA, DISTRICT JUNAGADH

In continuation of the last year's work *(1999-2000,* p.338 ), the ancient brick remains were conserved with lime-cement-mortar and watertightened.

409. JAMI MASJID, MANGROL, DISTRICT JUNAGADH

Cracks, joints and damaged roofs were grouted and sealed.

410. RAVELI MASJID, MANGROL, DISTRICT **JUNAGADH**

Cracks, joints and damaged roofs were grouted and sealed.

411. EXCAVATED SITE (CITADEL), DHOLAVIRA, DISTRICT KACHHH

In continuation of the last year's work *(1999-2000,* pp.338-340), repairs to the excavated remains, particularly the citadel wall from east gate to northern corner, the eastern reservoir and pointing of the walls of water tanks located inside the citadel were attended to.

The un-coursed rubble stone masonry veneering which were in highly deteriorated and loose condition, was dismantled after carefully documenting and numbering the stones. These stones were reset in their original position in lime, white cement and sand mortar added with colour oxide. The worn-out stones were replaced with stones of similar size, available at the site. The wide masonry joints were recess pointed in lime, white cement and stone dust mortar to make the structural remains watertight. The work is in progress

412. RAO LAKHA CHHATRI, BHUJ, DISTRICT KACHCHH

The Rao Lakha Chhatri collapsed leaving behind the platform and other Chhatris, which were also damaged, cracked and stones were dislodged due to earthquake. The area was enclosed with GI barbed-wire fencing on angle iron post for safety of sculptures and stone architectural members. The sculptures and architectural members are being sorted out from debris. Brick masonry support were also provided to the damaged and precariously hanging parts of small Chhatris in the complex to prevent further damage.

Pointing to masonry wall of step-well was done and approach path provided for the monument. Dressing of the pillars, *Kumbhi's* and capitals is in progress to replace the highly decayed and weathered pillars of adjoining Chhatri. The work is in progress.

413. SIVA TEMPLE, KOTAL, DISTRICT KACHCHH

The random rubble stone masonry support to dislodged, weather worn north-west corner of the temple was removed and provided with ashlar stone masonry to the plumb with moulded carving as per original. The repairs and restoration of entrance *mandapa* in ashlar stone masonry are in progress.

**414. VITHALBHAI HAVELI, VASO, DISTRICT KHEDA**

In continuation of the last year's work *(1999-2000,* p.340), the south-west extension of this nineteenth century Haveli consisting of ground and first storeys was in a ruinous state before the commencement of repairs due to heavy leakage, decay of woodwork and partial collapse. The roof-concrete together with wooden flooring below and wooden beams, rafters, columns and brackets were dismantled and the same was re-erected after replacing decayed wooden members. The wooden columns, pilasters, capitals and brackets etc. for replacement were freshly carved out from Bulsar country teak wood to match the original. The roof was laid in fresh lime-cement-concrete using gravel aggregate.

415. SUN TEMPLE, MODHERA, DISTRICT MEHSANA

Due to earthquake cracked and damaged stones and capitals of the temple and its joints were filled and sealed. Mending of the broken capitals was also done.

**416.** GATEWAY OF KHAN SAROVAR, PATAN, DISTRICT PATAN

Upper portion of arched gateway of this monument was partially damaged, besides cracks developed on the brick and stone masonry wall due to the recent earthquake.

The damaged portion of the monument was documented and debris removed after salvaging useful material for restoration. The damaged wall and the buttresses were reconstructed as per original. The cracks were filled and sealed, and the cavities were underpinned. The brick masonry in lime-cement over the main entrance gate was repaired and the work is in progress.

417. LIMBOJI MATA TEMPLE, DELMAL, DISTRICT PATAN

The *havan kund torana* gateway were damaged partly, besides some cracks developed and joints of the *sabha-mandapa* and main shrine were widened due to the recent earthquake.

The preservation of these monuments were attended to by grouting and sealing the joints. The *sikhara* of the temple was watertightened by filling up the cracks and sealing the joints in lime. The arched *toranas* of entrance gate and the fire altar of *mandapa* were mended with araldite and copper pin and restored in their original positions.

418. RAM-KI-VAV, PATAN, DISTRICT PATAN

The entire acquired area around the Vav particularly on road side was fenced with chain link on stone masonry dwarf wall with a view to develop a garden by Horticulture Branch. The work is in progress.

Cracks developed due to earthquake to the front side wall at upper side and joints opened and widened were grouted, filled and sealed in front side of the Vav at top.

**419.** SAHASTRALINGA TALAO, PATAN, DISTRICT PATAN

In continuation of the last year's work *(1999-2000,* p.340), the decayed and missing stones of embankment near temple basement with colonnade were replaced with chisel-dressed stones and reset in original position.

420. SHEIKH FARID TOMB, PATAN, DISTRICT PATAN

This structure over the grave of Sheikh Farid was completely collapsed due to the recent earthquake.

The fallen stone architectural members of the monument such as lintels, stone carved *jalis,* ceiling of dome, pillars etc. were salvaged and debris removed. The intact parts were kept separated and each member was documented and stacked properly..

The bulged out wall of adjoining tomb was dismantled and reset in plumb.

**421.** MAHATMA GANDHI'S BIRTH PLACE, PORBANDAR, DISTRICT PORBANDAR

The walls of the house where Mahatma Gandhi was born was provided with 15 mm thick waterproof lime-cement plaster. Two coatings of anti-fungus apcolite apex paint were also applied besides applying oil paint over the woodwork. The cracks developed in wall due to the recent earthquake were filled, sealed and repainted.

**422.** OLD DUTCH AND ARMENIAN TOMBS, SURAT, DISTRICT SURAT

The old collapsed compound wall on the

eastern side of the cemetery was reconstructed with coping as per original using old and new bricks. Underpinning, replastering of the existing parts of the compound wall was also carried out. The work is in progress.

423. OLD ENGLISH TOMB, SI KM, DISTRICT SI RAT

The cracks developed in the walls and arches of tomb Nos. 8, 11 and 12 were opened, cleaned and grouted in lime-cement and sand mortars. The external faces of the walls were restored with old type bricks after inserting stainless steel bars above the arch level. The dead plaster of the columns, arches, domes, ceiling and wall were removed and replastered in lime-*surkhi*-sand mortar with the intricate floral designs and motifs as per original. The missing wooden beams above the columns were provided on four sides to support the load of the masonry. The work is in progress.

424. SUN TEMPLE, THANGADH, DISTRICT SURENDRANAGAR

Due to earthquake *sabha-mandapa* of the temple collapsed. Brick masonry and wooden supports were provided as the temporary measure and debris removed.

425. FRESCO ROOMS, BHAU TAMBEKARWADA, VADODARA, DISTRICT VADODARA

The decayed wooden planks of the ceiling, second and top floors were replaced with Bulsar country teakwood with oil paint as per original. Replacement of wood carving and fixing the same in position were done including applying oil paints over a coat of wood preservative as per original. The worn-out plasters of wall was dismantled and replaced with fresh lime-plaster. The old wooden railing was also replaced with new railing, as per original.

Due to earthquake cracks had developed and joints widened in parapet wall. These were grouted and sealed.

426. HAZIRA OR QUTBUDDIN MAHMAD KHAN'S TOMB, VADODARA, DISTRICT VADODARA

The decayed stone flooring was dismantled carefully and fresh Dhrangadhra stone flooring was laid after cutting, dressing and pointing in lime-cement-concrete as per original. Cutting, dressing and setting of fresh Dhrangadhra stones for construction of pathways in lime-cement-mortar mixed with oxidized colour and stone powder were also attended to. The work is in progress.

# IX. ARCHAEOLOGICAL CHEMISTRY

## TREATMENT OF MONUMENTS AND PAINTINGS[1]

### ANDHRA PRADESH

1. VIRABHADRASVAMY TEMPLE, LEPAKSHI, DISTRICT ANANTAPUR

The paintings on the ceiling of *arddha-mandapa* and *garbha-griha* executed on the lime-plastered granite slabs having accumulation of dust, dirt and soot on the painted surface were observed to have lost adhesion of plaster at some places and presence of cocoons and cob webs etc.

To eradicate the insect activity, 2% pyrethrum extract was sprayed in the gaps, in the walls and joints etc. Superficial dust, dirt, cob webs were removed using sable hair brushes. All the loosened painted plastered areas were fixed to the support by injecting 5% solution of PVA. The soot and other accretionary deposits were removed by using a mixture of tri-ethanol amine, di-acetone alcohol and cellosolve etc. The tenacious surfaces were further cleaned using a mixture of methanol and iso-propanol. Finally consolidated and chemically cleaned areas were given a protective coat of 1% polyvinyl acetate.

2. SRI KODANDARAMASVAMY TEMPLE, VONTIMITTA, DISTRICT CUDDAPAH

The chemical treatment work was continued for the removal of micro-vegetational growth, lime and red ochre coat, oil, turmeric, *kum-kum* stains etc. on the exterior surfaces as well as ceilings, pillars and beams of the interior. The dried growth of micro-vegetation was superficially removed by dry brushing using nylon brushes. The chemical treatment work was carried out using an aqueous solution of ammonia and non-ionic detergent in the 3:1 ratio. The lime-coats on the walls, pillars and ceilings were removed by mechanico-chemical method using aqueous solution of 5-10% glacial acetic acid. On some locations aqueous solutions of 5% sodium hexa-meta-phosphate and mixture of sodium and ammonium bicarbonate in the 1:1 ratio were also used with satisfactory performance. The oil stains were removed using benzene whereas the adherent stains of red ochre, turmeric and *kum-kum* etc. were subjected to chemical treatment using 5% oxalic acid solution. These areas were washed with dilute ammonia and finally with water to remove all residual chemicals. The chemically cleaned external surface was given fungicidal treatment with 2% sodium pentachlorophenate and a protective coat of 2% Gujpol-P in toluene (pls.203-204).

3. SHRI BHIMESVARASVAMY TEMPLE, SAMALKOTA, DISTRICT EAST GODAVARI

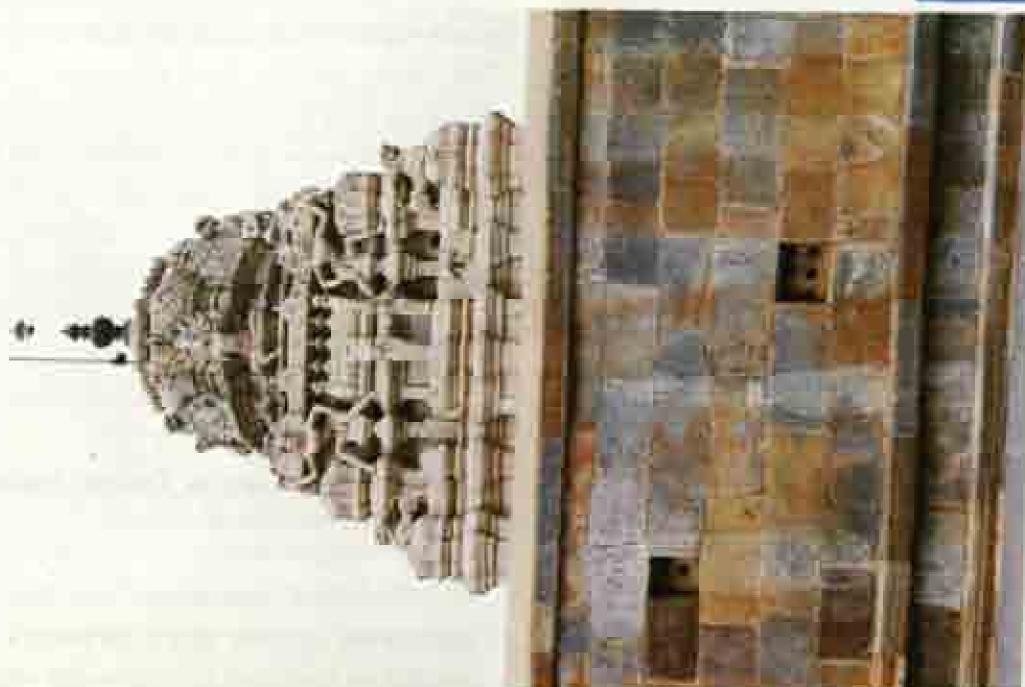
In continuation of the last year's *(1999-2000,* p.345) work, the chemical treatment was done to remove micro-vegetational growth from the *prakara* walls and interior areas such as ceiling, walls, beams, pillars of open clusters and marks

[1]Information from : Director { Science ) of the Survey. Dehradun

**Plates 203-204**



203



204

*Sri Kodandaramaswamy Temple, Vontimitta: 203, before and 204, after chemical treatment*

of acrylic paints from the beams and pillars near the east facing entrance. The chemically cleaned exterior surfaces were given fungicidal treatment and the protective coat using the double component system i.e., Repellin Super in aqueous medium in the first stage and after a gap of two weeks 2% solution of PMMA in toluene on the dried surface. The interior areas were given only 2% PMMA in toluene.

4. CHARMINAR, HYDERABAD, DISTRICT HYDERABAD

The chemical treatment work was taken up on the connecting walls of north-east and south-east minarets as well as south-east and south-west minarets. Extra care was taken to avoid any abrasive action on lime-plaster and stucco work while removing micro-vegetational growth, deposits of ingrained dust and soot. Ink marks on internal surface were removed using chloramine-T and pencil marks were removed using soft rubber eraser. The accretionary deposits were removed in different stages like using mixture of ammonia and teepol in the 3:1 ratio along with paper pulp and then after removal of dried paper pulp spraying the above surface with semiviscous solution of calcium oxy-chloride.

The loosely held small domes were consolidated and fixed in proper position by certain tough steel rods of required size and then repair work was carried out with the material matching the original. The missing stucco designs were also reconstructed using plaster of Paris. The chemically cleaned surfaces were given fungicidal treatment and the preservative coat.

5. NAVA BRAHMA GROUP OF TEMPLES, ALAMPUR, DISTRICT MAHABOOBNAGAR

In continuation of the last year *{1999-2000,* pp.345-347), work was done on the Garuda Brahmeshvara and Kumara Brahmeshvara Temples for the removal of lime-wash coats and micro-vegetational growth on the exterior surface. The interior surfaces were subjected to chemical treatment for the removal of hard calcareous and siliceous deposits occurred due to water seepage, lime-coats on the walls and ceilings. The calcareous/siliceous deposits were removed by using dilute acetic acid by chemico-mechanical means and at some locations the use of EDTA salt solution was also made. Cleaned surface was given fungicidal treatment and protective coat.

6. SRI BHIMESVARASVA,MY TEMPLE, SRIMDKHA-LINGAM, DISTRICT SRIKAKULAM

Chemical treatment of the general vegetational growth and accretionary deposits, comprising moss and lichens on the main *vimana* and walls of *antarala* and central hall, tenacious hard coat of lime on the entire structure, stains of oil, turmeric and *kum-kum* etc. from loose sculptures was taken up.

The micro-vegetational growth of moss and lichen was removed using a mixture of ammonia and non-ionic detergent whereas the creepers were carefully removed and the gaps of the joints were injected with 2% sodium-pentachlorophenate. The hard accretionary deposit of lime was removed by chemico-mechanical means using dilute acetic acid. Whereas different types of stains were removed using selective chemicals. The treated areas were finally given fungicidal treatment and preservative coat using 2% solution of Gujpol-P in toluene.

## ASSAM

7. VISHNU JANARDANA ROCK-CUT PANEL, GUWAHATI, DISTRICT GUWAHATI

The rock-cut panel covered with layer of vegetational growth was subjected to chemical treatment using mixture of ammonia solution and non-ionic detergent. After proper cleaning and thorough washing, the panel surface was given fungicidal treatment using 5% solution of sodium pentachlorophenate and finally a protective coat of water repellent silicone (pidicoat WRS) was applied.

**8.** GOLAK GHAR, JOYSAGAR, DISTRICT SIBSAGAR

The thick layers of vegetational growths were removed using 5% aqueous ammonia and non-ionic detergent by gentle brushing. The chemically treated surface was given a fungicidal treatment and water repellent coating to prevent the early re-growth of vegetation.

9. KARANG GHAR, JOYSAGAR, DISTRICT SIBSAGAR

The micro-vegetational growth was removed using ammonia and non-ionic detergent followed by application of fungicidal treatment and preservative coat.

10. RANG GHAR, JOYSAGAR, DISTRICT SIBSAGAR

This monument made of bricks which are lime-plastered was subjected to chemical treatment. The lime-plastered surface was badly affected due to micro-vegetational growth of moss and lichen. These accretionary deposits were carefully removed using mixture of ammonia and teepol. After thorough washing, fungicidal treatment and water repellent coating of pidicoat WRS on the dried surface was applied.

## DAMAN AND DIU

11. CHURCHES AT DAMAN, DAMAN

The gilded wooden altars and pulpits inside holy Jesus Church, Moti Daman were chemically treated. Accretionary deposits of dust, dirt, bird's excreta etc., were removed by using suitable organic solvents. At some places minor retouching work was also attended to and finally a preservative coat was applied.

12. CANON, MOTI DAMAN FORT, DAMAN

Six ancient canons lying inside fort were chemically treated. The dust, dirt and superficial rust were removed and improvised using dilute solution of sodium hydroxide and rust dissolver was given a protective coating with 3% solution of PVA in toluene.

13. FORT WALLS, DAMAN

The gates of holy Jesus Church and a big gate of Nani Daman Fort were subjected to chemical treatment. The dust, dirt, bird's excreta and thick layers of micro-biological growth were chemically cleaned, thoroughly washed and given preservative treatment by applying two coats of PMMA solution in toluene.

## DELHI

14. AZIM KHAN'S TOMB, MEHRAULI, NEW DELHI

The four exterior walls of the dome were subjected to chemical treatment for the removal of superficial layer of dust, dirt and other accretions as well as the micro-vegetational growth. The treated plastered surface was also subjected to chemical treatment using calcium oxy chloride slurry and thoroughly washed. The

cleaned surface was given fungicidal treatment followed by application of pidicoat WRS as water repellent.

15. ARAB-KI-SARAI, NIZAMMUDDIN, NEW DELHI

The interior of the entrance gate decorated with paintings and intricate designs was carefully treated with suitable solvents and chemicals using soft brushes. Prior to this treatment the fragile area of the painted surface was carefully consolidated by injecting suitable consolidant in the cracks. The entire treated surface was preserved with 3% PVA in toluene.

16. DADI-POTI TOMB-COMPLEX, HAUZ KHAS, NEW DELHI

The exterior of the bigger dome, four walls and rectangular side walls all around the monument including roof inside with lime-plaster as well as stone surface were subjected to chemical treatment. The lime-plastered surface being fragile was subjected to chemical cleaning using paste/slurry of Calcium oxy chloride whereas the stone surface was chemically treated using ammonia and teepol solution. The chemically cleaned areas were given fungicidal treatment and water repellent treatment using Repellin Super.

17. MONUME.NT-COMPLEX, HAUZ KHAS, NEW DELHI

A set of three domes along with floor area of the roof of the dome and parapet wall all around these domes were subjected to chemical treatment. The lime-plastered areas were carefully cleaned using soft bristle brushes and calcium oxy-chloride slurry whereas the stone surface was subjected to ammonia and teepol treatment. After the fungicidal treatment, water repellent treatment using Repellin Super was also carried out.

18. MOTI MASJID, ZAFAR MAHAL, NEW DELHI

The exterior marble surface comprising about 643 sq m was chemically cleaned. Clay pack treatment using fuller's earth activated with 1% sodium bicarbonate helped to remove superficial accretionary deposits from the surface. The stains were treated with organic solvents, dilute ammonia solution and hydrogen peroxide as per requirement. The work is in progress.

19. NEELA GUMBAD, NIZAMMUDDIN, NEW DELHI

The exterior of the dome decorated with blue coloured tiles was in very bad state of conservation because of thick biological growth as' well as small plants. The network of roots caused considerable damages to the plaster. Loose damaged blue tiles were carefully fixed to the plaster using suitable consolidant. The entire exterior surface was thereafter chemically cleaned with the aqueous mixture of ammonia and teepol. The work is in progress.

20. RED FORT-COMPLEX, RED FORT, DELHI

The sandstone surface of the fortification wall facing Ring Road beyond Rang Mahal and Mussaman Burj over Khas Mahal were subjected to chemical treatment. Superficial dust, dirt, micro-vegetational growth etc., were removed by using mixture of ammonia and teepol solution followed by fungicidal treatment and application of water repellent and Repellin Super. The plastered surface of Mussaman Burj was initially cleaned using ammonia and teepol solution with mild brushing followed by application of slurry of calcium oxy chloride so that least mechanical action is there during the process of chemical treatment. The plastered-surface was also given

fungicidal and water repellent treatment. The marble surface was subjected to clay pack treatment using Fuller's earth.

.Two Elephants at Delhi Gate including Rampart Wall, two cupola facing Chandni Chowk and Lahori Gate on three sides were subjected to chemical treatment in connection with Independence Day function as is done every year. The sandstone surface of Rampart Wall including two side cupolas were cleaned using mixture of ammonia and teepol. Besides, the removal of surface accretions and bird's excetra was done to clean the elephants at Delhi Gate. Both the structures were suitably preserved with a coat of fungicide and 2% PMMA in toluene.

Superficial layers of dust, dirt and other accretions from the marble surface of the Hira Mahal was removed with liquid ammonia and teepol solution using soft bristle brushes. The treated surface was subjected to clay pack treatment using accretions not yielding to normal process of treatment. The paste of fuller's earth was applied over the marble surface and then covered with polythene sheets. It was left for a day allowing the proper absorption to take place. The surface was made free of this paste and thoroughly washed. The work was completed.

Cleaning of superficial dust, dirt and other accretionary deposits on the marble surface of Shah Burj was carried out with the mixture of ammonia and teepol solution using soft brush. Thereafter the clay pack treatment was given to remove adherent surface accretions. After the treatment, the surface was thoroughly washed and allowed to dry. No preservative coat was applied.

The golden painting on the wooden ceiling of Diwan-i-Khas was chemically conserved by the process of consolidation filleting and colour reintegration. The consolidation work was carried out prior to chemical cleaning with the help of animal glue for stabilization of pigments. The paintings were suitably cleaned and restored by filleting work.

## GOA

### 21. Basilica of Bom Jesus, Velha Goa, Goa

The gilded wooden parts including the main altar, Blessed Sacrament and Mausoleum of St. Xavier were infested with insect activity at many places. In order to eradicate the insect activity and to preserve and protect this wooden altar, fumigation was carried out after sealing the entire work of art then by releasing etoxide gas (ethylene dioxide and CO, in 1:9 proportions) for thirty-six hours. After thirty-six hours the sealing was removed and the gas was slowly released.

### 22. St. Cajetan Church, Velha Goa, Goa

Some canvas and panel paintings displayed on the central pillars, altars and also preserved in the repository in this church were found damaged due to insect activity, accumulations of dust, dirt, bird's excreta, flaking of paint surface etc. These easel paintings were first gently brushed to remove the superficial dust, dirt, etc. and subjected to insecticide treatment on the back of the panel paintings. The flaking pigment layers were fixed to the panels using molten mixture of bees, wax and resin. The insect affected portions of wooden panel were consolidated and filled with a mixture of saw dust, lime-powder and acrylic resin. After mending work, fixing of the pigment layer, the

painted surface was chemically cleaned using organic solvents and selective colour reintegration was also attended to. Finally a coat of picture varnish was applied on the chemically cleaned and consolidated surface (pls.205-206)

23. ST. CATHEDRAL CHURCH, VELHA GOA, GOA

The panel painting in the Blessed Sacrament executed in the middle of second row on the left wall had suffered severe damage on account of its fall from nearly 12 feet height. The frame of the painting being infested with insects had suffered damage to a great extent.

All the pieces of broken panel painting were allowed to dry at normal room temperature. After removing the superficial dust, dirt etc. they were subjected to insecticidal treatment from the back side and then consolidated with 5% solution of PMMA. All the painted broken pieces were aligned as per the painted figure and jointed together using acrylic resin and mixture of saw dust, lime powder and little insecticide. The two separated panels were joined using stainless steel threaded bars by inserting and fixing them on the sides of both the panels with the same material used for joining different painted pieces. The cracks on the back side of the panel and joints of different pieces from both the sides were smoothly finished using the material for joining painted pieces and then the restored painted panels were mounted on a termite and waterproof 12 mm thick ply wood board using epoxy resin mixed with saw dust and lime powder. Thereafter the painted surface was chemically cleaned using organic solvents like di-acetone alcohol, cellosolves, methanol and petroleum spirit in equal proportions. The joints and filled gaps were reintegrated by colour matching and finally a coat of picture varnish was applied on the chemically cleaned painted surface.

## GUJARAT

24. RANI SIKRI MOSQUE AND TOMB, AHMEDABAD, DISTRICT AHMEDABAD

This mosque situated in the heart of the city containing accretionary deposits mainly of dust, dirt and lime deposition was subjected to chemical treatment and the cleaned surface was given a coat of PMMA for surface protection.

25. SIDI SYED MOSQUE, AHMEDABAD, DISTRICT AHEMEDABAD

The chemical treatment work involved the removal of dust, dirt, biological growth and bat's exereta. The work is in progress.

26. LIMBOJI MATA TEMPLE, DELMAL, DISTRICT PATAN

The beautifully carved and sculptured temple was covered with thick biological growth, lime deposition and smoke etc. These accretionary deposits were removed chemically and the cleaned surface was given a fungicidal treatment and a water repellent coat.

27. NILKANTHESVARA MAHADEV TEMPLE, RUHAVI, DISTRICT PATAN

The chemical conservation work involved the removal of thick lime-wash coat, biological growth and dust, dirt etc. The lime-wash coat was subjected to physico-chemical treatment using dilute acetic acid, whereas biological growth and other accretionary deposits were removed using mixture of dilute ammonia and teepol in aqueous solution. The cleaned surface was given fungicidal treatment as well as a protective coat of 3% solution of PMMA in toluene.

**Plates 205-206**



206



205

*Panel painting, St. Cajetan Church, Velha Goa:* 205, *before* and 206, *after chemical treatment*

## HARYANA

### 28. PATHER MASJID, THANESAR, DISTRICT KURUKSHETRA

The exterior red sandstone surface was subjected to chemical treatment for the removal of micro-biological growth and other accrctionary deposits using 2% aqueous mixture of ammonia and teepol. The cleaned surface was given fungicidal treatment using 2% aqueous solution of Sodium pentachlorophenate and finally preserved with two coats of 1 to 2% solution of PMMA in toluene.

## HIMACHAL PRADESH

### 29. LAKHNA DEVI TEMPLE, BHARMAUR, DISTRICT BHARMAUR

The temple located at Chaurashi Mandir-complex was subjected to chemical treatment. Being a living temple, beautifully decorated wooden panels were covered with soot and greasy matter and insect activity was also noticed. The chemical cleaning was carried out using organic solvent for the removal of accretionary deposits and insecticidal treatment was given to arrest insect problem. Finally, a preservative coat was applied using PVA in toluene.

### 30. MAM MAHESH TEMPLE, BHARMAUR, DISTRICT BHARMAUR

The exterior stone surface was subjected to chemical treatment for removal of micro-biological growth and accretionary deposits. Aqueous mixture of ammonia and teepol was used with mild brushing to facilitate the removal of biological growth as well as greasy and oily matter from the surface. The cleaned surface was given fungicidal treatment to reduce the reappearance of biological growth and finally preserved with 2% PMMA in toluene.

### 31. DUWANG GUMPHA, TABO, DISTRICT LAHAUL AND SPITI

In continuation of the last year *(1999-2000,* p.354), the chemical conservation work was carried out in north-east wall of assembly hall. In order to strengthen the painted plaster as well as the stucco figures, the cracks on the paintings were filled up and missing portions of the stucco figures were repaired with suitable and compatible material. After the process of strengthening and repairs, chemical cleaning was carried out using mixture of organic solvents like methanol. 2-ethoxy ethanol, petroleum ether etc.

The colour matching of the repaired and filleted areas was carried out as per requirement and 1-2% solution of PVA in toluene was applied as preservative.

### 32. MIRKULA DEVI TEMPLE, UDAIPUR, DISTRICT LAHAUL AND SPITI

The exquisite wooden carvings depicting various legendry scenes from *Ramayana* and *Mahabharata* were subjected to chemical treatment. Being a living temple the thick smoke and soot layers were deposited over the wooden panels, pillars and doors. At some places acrylic paints were also applied in the past. The chemical treatment was given to remove above accretionary deposit and paint layer using suitable organic solvents. Insecticidal treatment was also given to control insect's activity and finally a pre-servative coat was applied using 2% PVA in toluene.

## JAMMU AND KASHMIR

*33.* RAMNAGAR PALACE, RAMNAGAR, DISTRICT UDHAMPUR

Painted ceilings and walls of the Naya Mahal and the Purana Mahal located within the Ramnagar Palace-complex were subjected to chemical treatment. The repairs to these paintings which suffered great damage due to massive earthquake in the past as well as human vandalism was carried out as per requirement. The surface was chemically cleaned with suitable organic solvents for the removal of accretionary deposits and was preserved with 2% PVA in toluene.

## KARNATAKA

34. HAZARA RAMA CHANDRA TEMPLE, HAMPI, KAM ALAPURAM, DISTRICT BELLARY

In continuation of the last year's *{1999-2000,* p.354) work, the chemical treatment of the sculptures on the north and east entrances of outer compound wall was carried out. Vimana of main shrine, black pillars of goddess shrine were taken up for the removal of micro-vegetational growth and oily accretions were removed by using mixture of ammonia solution and non-ionic detergent. Lime deposits and calcareous accretionary deposits were removed by chemico-mechanical means using dilute acetic acid. The chemically treated areas after fungicidal treatment were preserved with 1% solution of Acrypol pellets in toluene.

The chemical cleaning of black pillars in *arddha-mandapa* were burnished with micro-crystalline wax.

**35. TREARURY BUILDING AND Gl ARD QUARTERS,** HAMPI, DISTRICT BELLARY

The outer and inner surfaces of the building were subjected to chemical treatment. Removal of micro-vegetational growth on outer surface was carried out by using an aqueous ammonia solution mixed with non-ionic detergent while interior surfaces affected with calcareous/lime deposits were chemically treated with dilute acetic acid solution. The chemically cleaned area was given fungicidal treatment of 2% solution of sodium pentachlorophenate followed by preservative coat of 1 % Acrypol in toluene. The work was completed.

36. BHOGHANANDISVARA TEMPLE, NANDI, DISTRICT KOLAR

Vimana, *navaranga,* sanctum walls all round the Arunachalesvara Shrine and Vimana of Bhoghanandisvara were subjected to chemical treatment for removal of micro-vegetational growth, oily accretions, calcareous accretions, lime deposits etc. An aqueous mixture of ammonia solution and non-ionic detergent was used for removing the vegetational growth while dilute acetic acid was used to soften the calcarious lime deposits. The work is still in progress.

37. DARIA DAULAT BAGH, SRIRANGAPATNA, DISTRICT MANDVA

In continuation of the last year's *(1999-2000,* pp.354-355) work, the mural paintings in north, inner verandahs, ceiling, walls, architraves and outer ceiling of north verandah of the monument were taken up for removal of superficial and ingrained accretions as well as old preservative to improve aesthetic appearance. The colour

integration work was also attended to wherever required and finally the paintings were preserved with 1% solution of PVA in toluene. The work is still in progress.

38. RANGANATHASVAMY TEMPLE, SRIRANGAPATNA, DISTRICT MANDYA

The areas where consolidation/modelling work of *vimana* of the main shrine was attended to by the Circle were subjected to fungicidal treatment and preserved with 5% solution of Arcypol in toluene.

39.TIPI' SULTAN'S MAUSOLEUM AND GUMBAZ, SRIRANGAPATNA, DISTRICT MANDYA

The chemical conservation work involving the removal of old, worn-out translucent varnish coat from the painted surface, filleting, consolidation and selective colour reintegration was carried out. After the chemical cleaning and consolidation, painted surface was preserved using dilute clear picture varnish.

40. SRIKANTESVARA TEMPLE, NANJANGUD, DISTRICT MYSORE

Removal of sooty, oily and lime-coat accretions was carried out on the south and the west sides of *portrait-mandapa* using mixture of aqueous ammonia solution and non-ionic detergent and dilute acetic acid respectively. The cleaned surface was given-fungicidal treatment and preservative coat was also applied. The work is in progress.

## KERALA

41. SIVA TEMPLE, PALLIMANNAH AND CHEMMANTHITTA, DISTRICT THRISSUR

The chemical conservation work was taken up for the removal of accretionary deposits from paintings, wood carvings, and stone sculptures. The paintings covered with dust, dirt, oil and sooty accretions were cleaned by using organic solvents like di-acetone alcohol, tri-ethanol amine, 2-ethoxy ethanol, and sulphur free toluene, Turpentine oil was also used as a restrainer. The broken edges were filleted with plaster of Paris and selective colour reintegration work was also attended to. Finally chemically cleaned paintings were preserved with 1.5% solution of PVA in toluene.

The accretionary deposits from the wood carvings of the *namaskara-mandapa* of Siva Temple at Chemmanthitta were removed using organic solvents like methanol, propanol. Thereafter insecticidal treatment and application of preservative coatings were carried out.

The dust, oily and dried sooty accretions on the granite stone of both the temples were chemically removed using aqueous solution of teepol and ammonia in 1:3 ratio and given a protective coat.

42. VADAKKUNATHAN TEMPLE, THRISSUR, DISTRICT THRISSUR

The wood carvings and stone sculptures of Sri Rama Shrine were subjected to chemical treatment. The wood carvings and bracket figures were chemically cleaned with mixture of organic solvents like methanol, propanol etc. to remove dust, dirt, bird's exereta, soot etc. and the cracks were filled in with a mixture of saw dust and acrylic emulsion. Thereafter flytox, a pyrethrum extract was applied as insecticide and finally preserved with 3% solution of PVA in toluene.

The stone plinth of the temple made up of hard granite rock was chemically cleaned using

aqueous solution of teepol and ammonia in 1:3 ratio and then protective coat was applied.

## MADHYA PRADESH

### 43. DIM JAGADAMBI TEMPLE, KHAJURAHO, DISTRICT CHHATTARPUR

In continuation of the last year *{1999-2000,* p.357), the removal of cryptogams such as moss, lichen etc., from the stone surface of platform and terrace wall was taken-up. After chemical cleaning, the fungicidal treatment and application of water repellent coat were also carried out.

### 44. MATANGESVARA TEMPLE, KHAJURAHO, DISTRICT CHHATTARPUR

Dried heavy micro-vegetational growth with dark patches are obstructing the fine ornamental details. The outer surface of the north-east facing walls of the structures comprising sanctum, central porch including the upper roof portion were subjected to chemical cleaning using ammonia solution (2-5%) mixed with Extran MA 02 neutral, a non-ionic detergent in water. The work is in progress.

### 45. VARAHA, NANDI AND MAHADEVA SHRINES, KHAJURAHO, DISTRICT CHHATTARPUR

In continuation of the last year's *(1999-2000,* p. 357) work, the chemical conservation work of these smaller shrines in the western group was taken-up and completed. Chemical cleaning for the removal of dust, dirt, bird's droppings, micro-flora and tenacious lime deposits from the sculptural element of the structure was carried out. Finally, the fungicidal treatment and application of water repellent coat was applied to the entire surface.

### 46. VISHVANATHA TEMPLE, KHAJURAHO, DISTRICT CHHATTARPUR

The exterior south facing walls of the structures were subjected to chemical cleaning. After the removal of accretionary deposits like dust, dirt, micro-flora and bird's excreta, the fungicidal treatment was carried out and finally" on the dried surface a coat of water repellent silicone resin WRS, pidicoat product was applied.

### 47. RAJA BIR SINGH DEO PALACE, DATIA, DISTRICT DATIA

In continuation of the last year's *(1999-2000,* p.359) work, the chemical conservation work for consolidation of the murals, removal of accretionary deposits form the painted surface and application of preservative coat was taken-up and completed. The wall paintings and stucco figures of the dressing hall located at the 4th floor were also taken up for chemical conservation work and the work is in progress (pls.207-208).

### 48. ROCK-CUT CAVES, BAGH, DISTRICT DHAR

In continuation of the last year's *(1999-2000,* p.359) work, a copy of the Bodhisattva figure on the west wall in the vestibule chamber of cave No. 2 was made in fibre glass reinforced polyester resin. The method followed for making the mould and cast was the same as described in the last year's work.

### 49. HOSHANG SHAH'S TOMB, MANDU, DISTRICT DHAR

The walls and arches in the interior cenotaph structure of this dome were badly defaced and disfigured due to the deposit of bat's excrement and leeched out mortar materials over the marble surface. The thick and hard layer of leeched out

**Plates 207-208**



208



207

*Mural painting, Raja Bir Singh Deo Palace, Datia:* 207, *before and* 208, *after chemical treatment*

mortar materials were removed mechanically with utmost care using small modelling tools. General chemical cleaning was carried out using dilute solution of non-ionic detergent. The work is in progress.

50. NILKANTHA PALACE, MANDI', DISTRICT DHAR

The monument built with limestone blocks was found to be affected by the growth of micro-flora on its exterior part besides extraneous deposits from wind blown materials, birds, lime and some minerals etc. Thereby giving untidy appearance. A weak solution of ammonia mixed with little non-ionic detergent Ranklene neural in water was used to remove these incrustations from stone element of the monument, in order to bring out the original surface.

51. RUPMATI'S PAVILLION, MANDU, DISTRICT DHAR

The exposed parts of the monument covered with surface crust and black stain caused by deteriogenic organism such as mosses, lichens and algae were subjected to chemical treatment. For the removal of micro-organisms from the plastered surfaces which presented a markedly weather beaten appearance, the use of calcium hypochlorite (bleaching powder) was found to be quite effective. While the cleaning of stone surface was carried out using aqueous ammonia solution (2%) and Ranklene neutral mixture in water. Cleaning on the exterior walls including the parapet wall of the upper storey and the north pavilion was carried out. The work is in progress.

52. GWALIOR FORT, GWAI.IOR, DISTRICT GWALIOR

Some of the colossal figures of the Jaina Tirthankaras. caned into the rock face, flanking the fort road were subjected to chemical cleaning for the elimination of dust, dirt, micro flora, bird droppings etc. by adopting a chemico-mechanical method using ammonia 2-3% and Extran MA-02 neutral (non-ionic detergent) mixture in water and gentle scrubbing the affected surface with soft brushes. The work is still in progress.

53. STUPA NO. 2, SANCHI, DISTRICT RAISEN

Chemical conservation work of the relief of the ground balustrade remained in progress.

54. NILAKANTHESVARA MAHADEVA TEMPLE, UDAIPUR, DISTRICT VIDISHA

In continuation of the last year's (*/999-2000,* p.360) work, the chemical conservation work was taken up while the work of the upper roof portion of the *Nandi-mandapa,* was completed, the chemical treatment work on the exterior side wall decorated with sculptural elements and fine carvings remained in progress.

## MAHARASHTRA

55. AJANTA CAVES, AJANTA , DISTRICT AURANGABAD

The chemical treatment of paintings for the removal of accrctionary deposits form the painted surface was carried out in cave Nos. 2, 9, 10 and 21. In cave No. 2, the chemical treatment was carried out on the south aisle, ceiling in order to remove soot accretions using suitable organic solvents followed by application of preservative coatings of 0.5% PVA solution for stabilization of painted surface. Similarly general cleaning was also carried out on the painted area of cave Nos. 9 and 21 for the removal of superficial dust and dirt followed by application of 0.5% PVA as preservative coating alter complete drying. In cave No. 10 the chemical treatment was carried out on the glass panel painting on the east wall with the

objective of removing thick accumulation *of* varnish, soot, shellac, dust and dirt using different organic solvents. The cleaned surface was allowed to dry for sufficient time and preserved with 0.5% PVA solution under favourable environmental condition.

In order to stabilize the painted surface as well as mud plaster consolidation, fixing/filleting work of loose painted plaster, cracks, holes etc. was carried out in cave Nos. 9,11,20 and 21 using appropriate compatible materials

Besides removal of dust and dirt from sculptures and painted surface of different caves using soft brushes, temperature and relative humidity were maintained regularly at cave Nos. 1,2, 16 and 17. Insecticidal treatment was also given regularly on fortnight basis on the unpainted surface using 2% pyrethrum extract as a preventive measure.

56. CAVE NO. 29, ELLORA, DISTRICT AURANGABAD

The chemical conservation work was taken up for removal of vegetational growth, hardened accretionary deposits as well as bat's excreta using aqueous mixture of ammonia and non ionic-detergent. Besides chemical cleaning filling of cracks and reconstruction of minor missing parts of sculptures were also attended to using rock powder of similar origin and acrylic resin. Finally, fungicidal and preservative treatments were given using *2%* sodium pentachlorophenate and 3% PMMA respectively (pls.209-210).

## ORISSA

57. DAKSHYA PRAJAPATI, BANPUR, DISTRICT BANPUR

In continuation of the last year's *(1999-2000,* pp.363-364) work, rest of the area was treated with 2% aqueous ammonia solution mixed with liquid non-ionic detergent for the removal of micro-vegetational growth, dust and dirt. At some places, 2-4% oxalic acid solution was also used to remove black accretions. Fungicidal treatment given after thorough washing and over the dried surface, one coat of 1:30 aqueous potassium methyl siliconate solution was applied. After seven days one coat of 1.5% PMMA solution in toluene was also applied as double component system of preservative.

58. PARASURAMESVARA TEMPLE, BHUBANESWAR, DISTRICT KHURDA

The Parasuramesvara Temple was subjected to chemical treatment for removal of micro-vegetational growth and other accretionary deposits. Eradication of micro-vegetational growth, dust, dirt and black accretionary deposits was taken up by using 2% aqueous ammonia solution mixed with non-ionic detergent and 2-3% oxalic acid as per requirement. Thoroughly washed surface was given fungicidal treatment and preserved with double component system of preservation. The work was completed.

59. SARI DEUL TEMPLE, BHUBANESWAR, DISTRICT KHURDA

The temple, badly affected with thick micro-vegetational growth and superficial accretionary deposits were subjected to chemical treatment.

Chemical cleaning was carried out for the removal of micro-vegetational growth, dust, dirt and pigeon excreta etc. using 2% aqueous ammonia solution mixed with non-ionic detergent. The cleaned area was given fungicidal treatment by spraying 2% aqueous sodium pentachlorophenate

Plates 209-210



209



210

*Panel of Cave 29, Ellora:* 209, *before* and 210, *after chemical treatment*

solution. Over the dried surface one coat of 1:30 aqueous Repellin Super solution was applied and after one week a coating of 1.5% PMMA in toluene was given as preservative treatment. The work was completed.

60. LORD JAGANNATHA TEMPLE, PURI, DISTRICT PURI

Northern and western parts of Meghananda Prachir, the outer wall of Lord Jagannatha Temple was subjected to chemical treatment to remove lime deposit as well as vegetational growth. The lime was removed by chemico-mechanical methods by using 2-4% acetic solution. While micro-vegetational growth was removed with aqueous mixture of 2% solution of ammonia in non-ionic detergent. The surface was washed with distilled water. 2% aqueous sodium pentachlorophenate solution was sprayed as a fungicidal treatment. Over the dried surface two coats of 1.5% PMMA solution in toluene was applied as preservative coat. Work is in progress.

61. SUN TEMPLE-COMPLEX, KONARAK, DISTRICT PURI

Chhaya Devi and Maya Devi Temples within the Sun Temple-complex were subjected to chemical treatment for the removal of vegetational growth as well as surface accretionary deposits using 2% aqueous ammonia solution mixed with non-ionic detergent. Extra care was taken in case of brick structure and accretionary deposits were removed with least brushing. The cleaned surface was thoroughly washed and given fungicidal treatment with 2% aqueous solution of sodium pentachlorophenate to arrest the reoccurrence of micro-vegetational growth. Finally, over the dried surface 1:30 aqueous potassium methyl siliconate solution was applied and after seven days one coat of 1.5% PMMA solution in toluene was applied as preservative. The work was completed.

The chemical treatment work of *nata-mandapa,* being situated within 3 km from sea was badly effected with saline spray and vegetational growth. The deposition of salts within the fabric of the stone was removed by repeated paper pulp treatment while micro-vegetational growth and other superficial accretionary deposits were removed with 2% aqueous ammonial solution to arrest further micro-vegetational growth. The dried surface was preserved with 1:30 aqueous potassium methyl siliconate solution and 1.5% PMMA as double component system.

## RAJASTHAN

62. ANCIENT SITE, BHANGARH, DISTRICT ALVVAR

The exterior sandstone surface of Keshav Rai Temple was chemically treated for the removal of biological growth and other accretionary deposits using 2-3% aqueous ammonia solution mixed with non-ionic detergent. The fungicidal treatment was followed by preservative coat with PMMA in toluene after three to four days. The work was completed.

63. NLLAKANTHA MAHADEV TEMPLE, NLLKANTHA, DISTRICT ALWAR

About five hundred loose sandstone sculptures were subjected to chemical treatment for removal of accretionary deposits of moss, lichen, dust, dirt, coating of lime and preservation. The biological growth was removed mechanically using soft nylon brushes with the help of liquid ammonia solution and non-ionic detergent. The lime accretions were removed with the help of very low concentration of acetic acid. 2%

Santobrite was used as fungicide to arrest the regrowth of biological accretions followed by preservative treatment with 2% potassium methyl siliconate solution. The work was completed.

64. HAJARESVARA TEMPLE, BIJOLIYA, DISTRICT BHILVVARA

The chemical treatment was taken up on the temple for the removal of micro-vegetational growth, dust, dirt and patches of lime coating from the exterior sandstone and lime-plastered surface. 2-3% aqueous ammonia solution mixed with non-ionic detergent was used for the removal of biological growth using soft brushes while 2% acetic acid solution was used for the cleaning of lime-wash. Fungicidal treatment was given using 2% solution of sodium pentachlorophenate followed by preservative treatment. The plastered surface was preserved with pidicoat WRS and 1% PMMA solution in toluene was used as preservative coating on the stone surface. The work was completed.

65. MAHAKALA TEMPLE, BIJOLIYA, DISTRICT BHILWARA

In continuation of the last year's *(1999-2000,* pp.366-370) work, chemical treatment was carried out on the northern side of *mandapa* and *arddha-mandapa* for the removal of biological accretions and lime-wash using 2-3% aqueous ammonia mixed with non-ionic detergent and 2% acetic acid solution respectively. The entire cleaned surface was given fungicidal treatment with 2% sodium pentachlorophenate solution and finally preserved with 1% PMMA in toluene. The work was completed.

66. CHITTAURGARH FORT, CHITTAURGARH, DISTRICT CHITTAURGARH

The exterior surface of Patalesvara Temple was subjected to chemical treatment for the removal of biological growth by chemico-mechanical method using mixture of ammonia and non-ionic detergent with soft nylon brushes. 2% sodium pentachlorophenate solution was applied as fungicidal treatment, followed by application of two coats of 1% PMMA in toluene. The work was completed.

The chemical treatment and preservation were undertaken on the exterior sandstone and lime-plastered surface of the main *sikhara* and *mandapa* of Ratnesvara Temple for removal of biological growth and superficial accretionary deposits using 3-4% aqueous ammonia solution mixed with non-ionic detergent. Fungicidal treatment was given with 2% solution of sodium pentachlorophenate to arrest the reoccurrence of biological growth. The lime-plastered and stone surfaces were preserved with suitable preservative.

67. SIVA TEMPLE, MENAL, DISTRICT CHITTAURGARH

The north-east face of the main *sikhara* was chemically treated for the removal of biological growth, dust and dirt to impart better aesthetic look and to protect the stone surface against adverse effects of biological growth. The surface was first treated with 2% aqueous solution of ammonia and non-ionic detergent to facilitate the removal of accretionary deposits. Dilute acetic acid was used for the removal of lime-wash, wherever required. The dried surface was given fungicidal and preservative treatment with 2% solution of sodium

pentachlorophenate and 1% PMMA respectively. The work is in progress.

68. SIVA AND NANDI TEMPLES, MENAL, DISTRICT CHITTAURGARH

The chemical treatment work was taken up on the exterior south-west stone structure of the main *sikhara, mandapa* and Nandi Temple for the cleaning of micro-vegetational growth and lime-coating 3-4% ammonia with non-ionic detergent and 1 -2% acetic acid were respectively used with soft brushing. Fungicidal treatment was given with 2% solution of santobrite in water to arrest the re-occurrence of biological growth and two coats of 1 % PMMA solution was applied as preservative coating. The work is in progress.

69. JAISALMER FORT, JAISALMER, DISTRICT JAISALMER

A portion of fort wall was chemically treated with 3-4% ammonia solution mixed with non-ionic detergent for the removal of vegetational growth and other vegetation deposits. The soot and greasy matters were removed with suitable organic solvents. The treated surface was given fungicidal treatment with 2% sodium pentachlorophenate in water and finally preserved. The work is completed.

## TAMIL NADU

70.MURUGANATHASVAMY TEMPLE, THIRUMURUGANAPUNDI, DISTRICT COIMBATORE

The interior and exterior walls, pillars and ceiling of *mandapa* of Siva shrine, Chandikesvara shrine, *Nataraja-mandapa, Mani-mandapa,* Maha-*mandapa* of Amman shrine and Kalyana-*mandapa* were chemically treated for the removal of soot and oily accretions including lime-wash. Dilute ammonia solution mixed with non-ionic detergent was used for the removal of accretionary deposits while lime-wash accretions were removed mechanically using dilute acetic acid solution. The cleaned surface was preserved by fungicidal treatment using 2% sodium pentachlorophenate and 3% solution of PMMA in toluene.

71. SHORE TEMPLE, MAHABALIPURAM, DISTRICT KANCHIPURAM

The rear shrine of main temple, the Vimana of Somaskanda Shrine and its exterior and interior walls as well as exterior surface of Sthalasayana Perumal Shrine were subjected to chemical treatment for the extraction of soluble salts using paper pulp method. The superficial dust and dirt were initially removed by chemical treatment using ammonia and teepol solution. Thereafter the paper pulp treatment was carried out 4-5 times using distilled water. The salt free surface was given fungicidal treatment with 2-3% sodium pentachlorophenate solution and finally preserved with 3% PMMA in toluene.

72. BRIHADESVARA TEMPLE, GANGAIKONDA PURAM, DISTRICT PERAMBALUR

The chemical treatment of the southern and western walls below superstructure of the *vimana* to remove extraction of soluble salts and cleaning of surface deposits was done. Surface deposits were removed with the mixture of Ammonia solution and non-ionic detergent followed by paper pulp treatment was given to extract soluble salts from the granite surface of the temple. After ensuring the complete removal of salt the fungicidal treatment was given using 1.5% solution of Sodium pentachlorophenate and finally preservative coat of 3% PMMA in toluene was given.

73. BRIHADESVARA TEMPLE, THANJAVUR, DISTRICT THANJAVUR

The *keralantaka gopuram* and compound wall of the structure with plastered surface and stucco figures were chemically treated for the cleaning of vegetational growth, bird's droppings and other accretionary deposits. The slurry of calciumroxy chloride in combination with teepol and ammonia was used to remove the vegetational growth from the plastered-surface using soft nylon brushes. The surface was thoroughly washed and preserved with 3% sodium pentachlorophenate solution as fungicide and double component system of preservative using PMMA and pidicoat WRS (pls. 211-212).

74. ERUMBISVARA TEMPLE, THIRUVERAMBUR, DISTRICT TRICHRAPALLI

The granite ceiling, pillars in north and east sides of the temple were chemically treated for the removal of lime deposits, dust, dirt and oily accretions. 4-5% aqueous acetic acid solution was used to remove lime-deposits while aqueous ammonia solution mixed with non-ionic detergent was used for the removal of accretionary deposits and preserved with 3% PMMA in toluene.

## UTTAR PRADESH

75. AGRA FORT, AGRA, DISTRICT AGRA

The exterior front face of Delhi Gate, which is made up of red sandstone with partial use of lime-plaster, was chemically treated for the removal of biological growth and accretionary deposits of suspended particulate matter. Aqueous mixture of ammonia and non-ionic detergent was used to facilitate removal of above accretions. 2% solution of sodium pentachlorophenate was applied as fungicide followed by application of 1% solution of Repellin Super as water repellent.

The interior marble surface and decorated plastered surface of Sheesh Mahal were chemically treated for the cleaning of dust, dirt and other accretionary deposits. Decorated plastered surface was cleaned with suitable mixture of solvents after dry brushing. The unpainted marble surface was cleaned with the help of clay pack treatment.

76. DARGAH-COMPLEX, FATHEPUR SIKRI, DISTRICT AGRA

The chemical treatment work was taken up on the stone and lime-plastered surface of Dargah-complex including *burgles,* dome and wall of corridor for the removal of micro-vegetational growth and other accretionary deposits using 2-3% solution of aqueous ammonia and non-ionic detergent. After chemical cleaning fungicidal treatment was given with 2% solution of sodium pentachlorophenate followed by preservative treatment with 1% solution of Repellin super.

77. TAJ MAHAL, AGRA, DISTRICT AGRA

The marble and red sandstone surface of Shaheli Burj within the complex of Taj Mahal was chemically treated for the removal of micro-vegetational growth, bird's excreta as well as suspended particulate matter. Clay pack method was used for cleaning of marble surface while sandstone surface was cleaned with the help of ammonia and non-ionic detergent with soft brushing. The fungicidal treatment was given to the cleaned and dried surface to arrest the further growth of micro-vegetation. The preservative treatment was given to the sandstone surface using 1% Repellin Super in distilled water.

**Plates 211-212**



212



211

*Keralantaka Gopuram, Brihadesvara Temple, Thanjavur: 211, before and 212, after chemical treatment*

78. ITIMAD-UD-DAULLA,AGRA, DISTRICT AGRA

The chemical treatment work was taken up on the exterior marble surface of main mausoleum to remove deposition of soot, smoke, dust and particulate matter using clay pack technique. Fuller's earth changed with suitable chemicals and solvents was applied on the surface which facilitates cleaning. Thereafter, the surface was thoroughly washed with distilled water.

The Chemical treatment work was taken up on the painted plaster of corner room of Northern Verandah to remove old preservative to bring back clear visibility to the paintings as well as surface deposits.

Mixture of organic solvents was used and the surface was finally preserved with 1% solution of PVA in toluene.

79. RAMABHAR STUPA, KUSHINAGARA, DISTRICT KUSHINAGAR

The accretionary deposits of dust, dirt and micro-vegetational growth were subjected to chemical treatment using ammonia teepol solution with gentle brushing. Fungicidal treatment with 5% solution of sodium pentachlorophenate and water repellent treatment with WRS was given.

80. GROUP OF TEMPLES, GANGOLIHAT, DISTRICT PITHORAGARH

The exterior grey colour sandstone surface was subjected to chemical treatment for the eradication of biological growth using aqueous ammonia and Extran non-ionic surface detergent. After cleaning and thorough washing 2% solution of sodium pentachlorophenate was applied as fungicidal treatment followed by application of 1% solution of Repellin Super on dried surface as consolidant and water repellent.

## WEST BENGAL

81. NANDALALTEMPLE, BISIUNPIR, DISTRICT BANKURA

The plastered as well as unplastered-surface of laterite stone-built temple were subjected to chemical treatment for removal of thick layers of micro-vegetational growth using ammonia and non-ionic detergent. In case of plastered-surface extra care was taken to use only gentle brushing. The surface consolidation with 3% solution of acrylic emulsion at some places was also carried out. Fungicidal treatment and application of a protective coat using 2% solution of PMMA in toluene were given only on the plastered surface.

82. RADHA GOVINDA TEMPLE, BISHNUPUR, DISTRICT BANKURA

The laterite and plastered-surface were subjected to chemical treatment for removal of dried thick macrophytes by 5% aqueous ammonia and non-ionic liquid detergent solution. The chemically cleaned area was given fungicidal treatment by applying 5% aqueous solution of sodium pentachlorophenate to check re-growth of microphytes. 3% aqueous solution of acrylic emulsion and 2% solution of PMMA in toluene were used for surface consolidation and as a preservative respectively on the plastered-surface only.

## TREATMENT OF EXCAVATED OBJECTS AND MUSEUM EXHIBITS[1]

Chemical treatment of antiquities in the Zonal Laboratory, Hyderabad, was carried out of hundred iron and forty copper objects received from the Excavation Branch, Nagpur, of the Survey. These were chemically treated using suitable chemicals and preserved.

[1]Information from : Director ( Science ) of the Survey, Dehradun

a) Twenty-three copper and lead objects received from the Mini Circle, Goa, of the Survey, were subjected to chemical treatment and preservation.

2. Chemical treatment of antiquities in the Zonal Laboratory, Delhi, was carried out of the followings objects:

a) Eighty-four copper antiquities received from Purana Qila, of the Survey, Delhi, were chemically treated and preserved.

b) Manuscript received from Mumtaz Mahal museum was restored.

c) Two lithographs received from Mumtaz Mahal Museum were chemically treated and preserved.

d) Clay pots received from the burials at Dholavira were chemically treated and pre served.

e) Nineteen silver antiquities received from the Central Antiquity Collection, Purana Qila, Delhi, of the Survey, were chemically treated and preserved using suitable chemicals.

1) One pot having basket underneath at National Museum, New Delhi, was chemically treated and preserved.

g) Two pillar bases displayed at National Museum, New Delhi, were chemically treated and preserved.

Four old record files with old photograph and a register received from SA, Delhi Circle, of the Survey, were under treatment.

## CHEMBCAL TREATMENT OF ANTIQUITIES IN THE ZONAL LABORATORY, MYSORE

The deacidification of estampages was carried out using Alcoholic barium hydroxide solution. The estampages were repaired by mending the tears and strengthening the edges by strip lining. They were preserved with 1% PVA in toluene. The work was completed.

## CHEMICAL TREATMENT OF ANTIQUITIES, HAZAR DUARI PALACE MUSEUM, MURSHIDABAD

Three canvas oil paintings were subjected to relining, stretching, chemical cleaning and retouching.

b) Seven card board oil paintings were chemically cleaned by organic solvents and retouching was also done.

c) Twenty-nine Procession items; fourteen dining table sets; one dressing table; four metal hot trays; one candle stand, one flower wash, one helmet, twenty-four spoon and knives, two tables and six Aluminium Punja were chemically cleaned with 4 to 5% hydrogen peroxide solution and 10% methyl alcohol solution with non-ionic detergent and distilled water and finally dried with muslin cloth.

## CHEMICAL TREATMENT OF MUSEUM OBJECTS, ARCHAEOLOGICAL MUSEUM, KONARAK

A collection of statues, door-jambs etc, from Sun Temple-Complex mainly made of khondalite and chlorite stones, were cleaned by using 2%

ammonium hydroxide solution mixed with labolene a non-ionic detergent and washed with water. Over the cleaned surface, 2% sodium pentachlorophenate solution was sprayed and left for drying. Then 1:30 aqueous potassium methyl siliconate solution was applied followed by 1.5% PMMA solution in toluene as preservative after a gap of seven days between the two coats.

### CHEMICAL TREATMENT OF ANTIQUITIES IN THE ZONAL LABORATORY, JAIPUR

a) Persian carpets of Gopal and Kishan Bhawan, Deeg Palace-Complex, District Bharatpur, were chemically treated with suitable organic solvents in suitable proportions. The torn portion of carpet were stitched and strengthened by providing and fixing good quality of canvas cloth. The treated carpets were fumigated with Thymol crystal in an air tight room and again cleaned with vacuum cleaner followed by careful brushing. To arrest insect activities P-dichlorobenzene in muslin cloth was placed below the carpets and transparent polythene sheets was placed below and over the carpets to avoid any further deposition of dust, dirt and other accretions.

b) The metallic flower pots along with wooden . pedestals of Gopal and Kishan Bhawan, Deeg, were subjected to chemical treatment to remove the salts by using suitable chemicals.

c) Two decorative brass plates of Gopal and Kishan Bhawan, Deeg, were chemically treated to remove dust, dirt and chlorides by using 10% solution of Potassium Sodium tartrate.

d) Sixty antiquities preserved in Hamir Palace, Ranthambore Fort, District Savai Madhopur, were chemically treated and preserved. The accretions were removed by using potassium sodium tartrate solution, sodium hydroxide, oxalic acid, acetone, toluene, zorik 88 depending upon the nature of accretions. The cleaned artefacts were preserved with a coat of PMMA in toluene, Benzotriazola was also used as corrosion inhibitor.

### CHEMICAL TREATMENT OF EXCAVATED MATERIAL IN THE LABORATORY, DEHRADUN

A human skeleton from the burial site No. 7 along with ten earthen pots unearthed during the excavation at Rakhi Garhi, District Hissar, Haryana, was lifted for the chemical treatment, consolidation and preservation in the laboratory of the Director (Science), Dehradun. Ten earthen pots were chemically cleaned and preserved. Out of ten pots six were broken in number of pieces which were assembled/reassembled in matching position and joined with suitable adhesive. After mending, the missing portions were restored with plaster of Paris, Finally retrieved human skeleton along with earthen pots was displayed in the artifically fabricated trench at Harappan gallery of National Museum. New Delhi.

### CHEMICAL TREATMENT OF MUSEUM OBJECTS, PANIPAT MUSEUM, PANIPAT

Fifty-two stone sculptures, fifty-four copper objects, thirty-two iron objects, twenty-one silver objects, fifty-six wooden objects, eight leather

objects were chemically treated. Chemical treatment of museum objects in Bhima Devi Museum, Pinjore and one Bronze in the store of Haryana Archaeology Department, Panchkula, Haryana, was undertaken.

## MONITORING OF AIR POLLUTION

A. AIR POLLU TION MINITORING ; AT TAJ MAHAL AND OTHER MONUMENTS AT AGRA

Air pollution monitoring at Taj Mahal was carried out to monitor the presence of air pollutants such as sulphur dioxide, Oxides of Nitrogen and suspended particulated matter, in the ambience of Taj. The sulphation rate and dust fall rate were also calculated. In addition to these meteorological parameters such as temperature, relative humidity, wind speed/ wind direction which may affect the activity of these pollutants were also monitored in the laboratory. The dust fall rate and sulphation rate were also monitored at Agra Fort, Agra.

B. METEOROLOGICAL PARAMETERS

Wind speed and wind direction were measured with the help of wind monitor (WM-200). During the period under review, Taj Mahal experienced light air to gentle breeze with a speed of 6 to 12 km per hour with a few exceptions of dust storms during April to July. The direction of the flow remains north-north-west to south-south-west.

Temperature and relative humidity are responsible for dilution and dispersion of various pollutants. Large variations in temperature and relative humidity exert stress into the stone matrix which in turn may result into crack and other damages.The climate of Agra is a tropical one. During the period under review, large variation in temperature and humidity was recorded.

C. PHYSICAL PARAMETERS

The dust fall rate was recorded in Metric tones per square kilometers as maximum in June-2000 and minimum in October-2000, Volatile matter of dust fall was also estimated and recorded during the period.

The level of Suspended participate matter (SPM) in the ambient Air was measured using high volume sampler. The tolerable limit for SPM was fixed as 1000/ug/$M^3$ for the sensitive zone so for the monuments as well. The maximum concentration was measured as volume 1049ug/$m^3$ during the month of May 2000.

D. CHEMICAL PARAMETERS

Maximum concentration of Sulphur dioxide was determined as 79.00 ug/$m^3$ during the month of September, 2000 (monthly average 24.00ug/$m^3$). While the maximum concentration of oxides of Nitrogen was recorded as 50.86 ug/$m^3$ in November (monthly average 10.75 ug/$m^3$).

Sulphur dioxide converts into sulphuric acid under favorable conditions but through various mechanisms in the presence of suitable catalyst, if present, in the environment. The process of this conversion includes intermediate steps of changing first into sulphurtrioxide in the atmosphere which

[1]Information from : Director (Science) of the Survey, Dehradun

in turn is converted into sulphuric acid. The Sulphation rate was measured during the period by lead candle method. The maximum sulphation rate was observed as 0.017 gm SO/m$^2$/day in April 2000 and minimum as 0.0069 gm/m$^2$/ day during July 2000.

E. MONITORING OK AMBIENT AIR QUALITY AROUND CHAR MINAR, HYDERABAD

Studies pertaining to monitoring of suspended particulate matter and important gaseous pollutant in the ambient in and around Charminar and their impact on the stability of structure are being continued.

F. MONITORING OK MICRO/MACRO CLIMATIC PARAMETERS AROUND GOMATESVARA STATUE, SRAVANABELAGOLA, DISTRICT HASAN

In order to study the impact of air pollutant on the Gomatesvara statue, various climatic parameters, like temperature, humidity, wind speed, wind direction and rainfall were monitored during the period under review.

## RESEARCH AND ANALYSIS[1]

In continuation of the last year's *(1999-2000,* p.377) research work, studies were extended to performance evaluation of some of the water proofing materials for terracotta and lime-plastered surfaces. Material which performs well on stone surface as preservative may not be compatible to plastered and terracotta surface because of their different physico-chemical characteristics. Need was therefore left to find out most suitable product for these two surfaces and studies were accordingly initiated on different chemical formulations available in the market.

Studies were continued on a traditional protective coating referred to as *"vajralepa"* in literature used on the stone surfaces of many monuments. On the basis of recepies referred to in the literature two pastes were developed with the available natural products and their performance as preservative coat was evaluated.

On the basis of field observations related to varied conservation problems, studies were initiated on the following areas.

i) Investigative studies to evaluate the role of natural additives reportedly used in ancient lime-plaster and to improve glaze of lime-plaster.

ii) Soil stabilization for better protection of adobe structures.

iii) Studies of reduce yellowing/darkening of varnishes (copal/mastic) on ageing.

iv) Studies on corrosion inhibitors for stabilization of excavated iron objects.

ANALYSIS

a) Four mortar samples for Humayun's Tomb, New Delhi, were analyzed to find out its chemical constituents.

b) One rock sample from Bodh Gaya were analyzed for its chemical compositions.

c) Two samples from Hearth Nos. 42 and 67 (site RGR-2), unearthed at Rakhi Garhi, District Hissar, Haryana, were quantitatively

[1]Information from : Director (Science) of the Survey, Dehradun

analyzed for the percentage compositions of various constituents.

d) Four metal samples received from the office of the Deputy Superintending Archaeological Chemist, Hyderabad, of the Survey, were analyzed qualitatively by XRF in coordination with Wadia Institute of Himalayan Geology to have preliminary information about their metallic composition.

e) SEM studies of khondalite stones grouted with epoxy resin were carried out to obtain information regarding suitability of the product as consolidant with structural characteristics.

f) Metallographic studies of some metal sample from Deeg Palace, District Bharatpur, Rajasthan were done to have information about their structural characteristics.

g) Five sample of lime-plaster samples collected from Char Minar, Hyderabad was analyzed to find out their chemical constituents.

h) Mud-plaster samples from Ajanta Caves 2 and 26 were studied under SEM for obtaining information regarding their morphological and petrological characteristics. These sample were analyzed by XRD method also for identification of their Mineralogical compositions. This analysis was carried out in coordination with Wadia Institute of Himalayan Geology, Dehradun.

# X. ARCHAEOLOGICAL GARDENS[1]

During the period under report, the Garden Branch, of the Survey, is maintaining about one hundred and sixty-five gardens and there are at least eighty-six gardens under the various stages of development. Under the development projects the said branch initiated a number of steps to improve and beautify the following sites and monuments.

## GARDEN DEVELOPMENT PROJECTS

## KARNATAKA

1. CHANDRASEKHARA TEMPLE, HAMPI, DISTRICT BELLARY

Landscaping in and around the temple was done in addition to the removing of rank vegetation by fresh plantation of shrubs, trees and grass.

2. ELEPHANT'S STABLE, HA.MPI, DISTRICT BELLARY

The development of garden in the northside of the stable was taken up by introducing new plants.

3. QUEEN'S GARDEN, HA.MPI, DISTRICT BELLARY

Landscaping around the garden was under taken in phased manner by introducing local flora, so as to give a composite and complete status to the magnificent site.

## ORISSA

4. LINGARAJA TEMPLE, BHUBANESWAR, DISTRICT BHUBANESWAR

The development of garden within the temple-complex was done by landscaping the surrounding for beautification.

5. ARCHAEOLOGICAL MUSEUM, RATNAGIRI, DISTRICT JAIPUR

The horticultural operation at the museum area was improved by laying an aesthetically beautiful garden.

## RAJASTHAN

6. BHANGARH FORT, ALWAR, DISTRICT ALWAR

The development of garden at the fort was taken up by landscaping and introducing lawns, flower beds, shrubs and trees.

7. TEMPLE-COMPLEX, BADOLI (NEAR RAWATHATA), DISTRICT KOTA

The development of garden in this

temple-complex was done by laying a garden befitting the temple deity.

8. HAMIR PALACE, RANTHAMBORE, DISTRICT SWAI MADHOPUR

In the palace-complex at Vijay Durg. while laying a lawn, care was taken to introduce local flora and fauna.

## TAMIL NADU

**9. AIRAVATESVARA TEMPLE, DARASURAM, DISTRICT JHANJAVAR**

The development project of this temple was initiated for an attractive environmental decoration by laying lawns, flower beds suitable to the temple.

## UTTAR PRADESH

10. CHINI-KA-RAUZA, AGRA, DISTRICT AGRA

A befitting Mughal style garden was developed keeping in view the use of traditional flora and fauna in-and-around the monument.

11. KANKALI TILA, MATHURA, DISTRICT MATHURA

A garden, aesthetically designed, was laid at the excavated site.

## IMPROVEMENT IN IRRIGATION FACILITY

12. During the year under review the Garden Branch under its developmental projects, improved the irrigation system by providing deep tube-wells and underground sprinklers at the following sites/ monuments.

| *State* | *District* | *Site/Monument* | *Nature of work undertaken* |
|---|---|---|---|
| Bihar | Kushinagar | Buddhist Stupa at Kushinagara | Construction of deep tube-well |
| Karnataka | Bijapur | Ibrahim Rauza and Dakhnai Idgah | Construction of deep tube-well |
| -do- | Mysore | Lakshmi Narayana Temple, Hosahalu | -do-Introduction of |
| Orissa | Bhubaneswar | Muktesvara. Rajarani and Ramesvara | underground sprinklers |
| | | Temples | Construction of deep tube-well |
| -do- | Ganjam | Gumbaz Garden | Introduction of underground sprinklers |
| -do- | Sun Temple | Konarak | |
| | | Mehtab Bagh | -do-- |
| -do- | -do- | | do- |
| | | Kacha Bagh. Deeg | |
| Rajasthan | Bharatpur | Shahi Fort | Introduction of underground sprinklers |
| Uttar Pradesh | Jaunpur | | |
| | | | Construction of deep tube-well |
| -do- | Lucknow | Alam Bagh Cemetery | |

| *State* | *District* | *Site/Monument* | *Nature of work undertaken* |
| --- | --- | --- | --- |
| West Bengal | Bankura | Rasmancha, Bishnupur | Construction of deep tube-well and Introduction of underground sprinklers |

**REJUVENATION OF OLD GARDENS**

13. Under this project, the Garden Branch initiated the work of rejuvenation of the following gardens for their improvement and beautification.

| *State* | *District* | *Site/Monument* |
| --- | --- | --- |
| Andhra Pradesh | Hyderabad | Golconda Fort |
| Delhi | Delhi | Tombs of Nazaf Khan, Khan-e-Khana, Khairul Manazil and Kotla Feroz Shah |
| Karnataka | Mandya | Dariya-Daulat Bagh, Srirangapatnam |
| Madhya Pradesh | Chhatarpur | Western group of temples, Khajuraho |
| Rajasthan | Chittaurgarh | Padmini's Palace, Chittaurgarh |
| Tamil Nadu | Vellore | Vellore Fort |
| Uttar Pradesh | Jhansi | Jhansi Fort |

# XI. PUBLICATIONS

During the year under review, the following new publications were brought out by the Survey.

A. ARCHAEOLOGICAL PUBLICATIONS

1. *Indian Archaeology 1994-95-A Review*

2. Brochure on the *National Culture Fund and theASI*

3. Brochure on the *World Heritage Monuments* (in Hindi)

**B. EPIGRAPHICAL PUBLICATIONS**

1. *Epigraphia Indica, Arabic and Persian Supplement 1977*

2. *South Indian Inscription, Vol. XXII, pt. III*




The Survey also brought out the reprints of the following out-of-stock publications during the year.

1. *Cunningham s Report of the ASI,* Vols. -1, II, V, VIII, IX, X, XI, XII, XIII, XIV, XV, XXII, XXIV

2. *Delhi and Its Neighbourhood* (English)

C. OTHER PUBLICATIONS

Andhra Pradesh - The Department of Archaeology and Museums, Government of Andhra Pradesh, Hyderabad, brought out the following publications,

i) *Inscriptions of Medak District,* and

ii) *Andhra Pradesh Archaaeology A Review* - for the year 1987-2001 *Supplement 1977*



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